Pioneer sound.vision.soul

# Service Manual

**HONDA**

ORDER NO.
**CRT3404**

## XM SATELLITE DIGITAL TUNER

# GEX-M7347XMZH/XN/UC

| VEHICLE | DESTINATION | PRODUCED AFTER | OEM PART No. | ID No. | PIONEER MODEL No. |
|---|---|---|---|---|---|
| SUT | U.S.A. | February 2005 | 39820-SJC-A010-M1 | ••••• | GEX-M7347XMZH/XN/UC |

● **This service manual should be used together with the manual(s) listed below.**
**For the parts numbers, adjustments, etc. which are not shown in this manual,refer to the following manual(s).**

| Model No. | Order No. | Mech.Module | Remarks |
|---|---|---|---|
| GEX-M7027XMZH/XN/UC | CRT3005 | | |

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2004**
K-ZZA. NOV. 2004 Printed in Japan

# SAFETY INFORMATION

**WARNING**

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

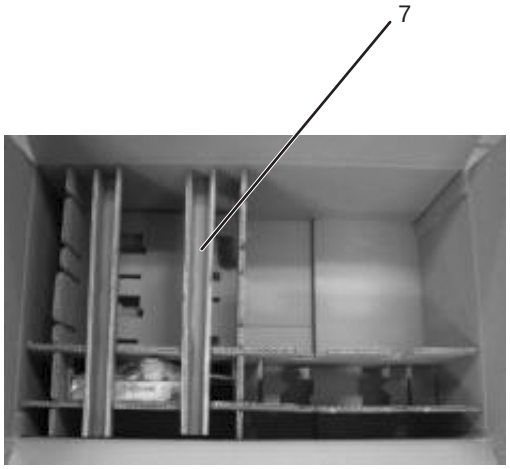
# EXPLODED VIEWS AND PARTS LIST

## PACKING(Page 4)

**PACKING SECTION PARTS LIST**

*:Non spare part

| Mark | No. | Description | GEX-M7027XMZH/XN/UC | GEX-M7347XMZH/XN/UC |
|---|---|---|---|---|
| | 1 | Contain Box | CHL4928 | CHL5401 |
| | 2 | Protector | CHP2656(x4/6) | CHP2883(x2/6) |
| | 3 | Protector | CHP2657 | CHP2884(x3/6) |
| | 5 | Protector | CHP2655 | CHP2882 |
| * | 6 | Card | CRL2374 | Not used |
| | 7 | Protector | Not used | CHP2885(x4/6) |




## EXTERIOR(Page 6)

**EXTERIOR SECTION PARTS LIST**

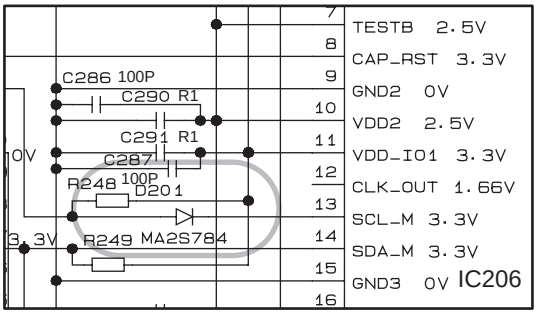
| Mark | No. | Description | GEX-M7027XMZH/XN/UC | GEX-M7347XMZH/XN/UC |
|---|---|---|---|---|
| | 4 | Main Unit | CWM8561 | CWM9557 |
| | 18 | Digital Unit | CWX2749 | CWX3074 |
| | 24 | Case Unit | CXB9640 | CXC3344 |
| | 28 | Transistor(Q852) | 2SB1185 | TA48018S(IC)(IC852) |

# ELECTRICAL PARTS LIST(Page 36)

**DIGITAL UNIT**

| Circuit Symbol and No. | GEX-M7027XMZH/XN/UC | GEX-M7347XMZH/XN/UC |
|---|---|---|
| IC202 IC | STA-400 | STA-400A |
| IC203 IC | K4S280832D-TL1H | K4S280832F-TC75 |
| IC206 IC | STA-450 | STA-450AP |
| D201 Diode | Not used | MA2S784 |
| R248 | RS1/16SS103J | RS1/16SS472J |
| R249 | RS1/16SS103J | RS1/16SS472J |

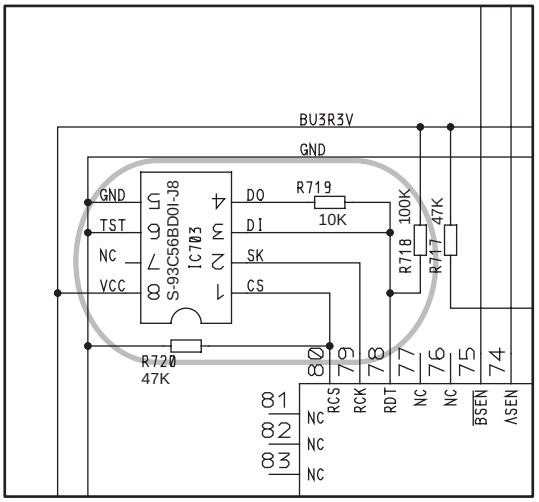
Page 27 5-C



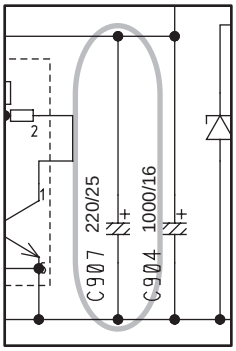
## MAIN UNIT

| Circuit Symbol and No. | GEX-M7027XMZH/XN/UC | GEX-M7347XMZH/XN/UC |
|---|---|---|
| IC701 IC | PD5818A | PEG029B |
| IC703 IC | Not used | S-93C56BD0I-J8 |
| IC852 IC | S-816A25AMC-BAA | TA48018S |
| Q852 Transistor | 2SB1185 | Not used |
| D851 Diode | S2G-6600 | Not used |
| D902 Diode | MPG06G-6415G50 | S2G-6600 |
| Digital Unit | CWX2749 | CWX3074 |
| R461 | Not used | RS1/16S0R0J |
| R718 | RS1/16S223J | RS1/16S104J |
| R719 | Not used | RS1/16S103J |
| R720 | RS1/16S223J | RS1/16S473J |
| C853 | CSZS4R7M10 | CSZS330M6R3 |
| C858 | Not used | CKSRYB104K16 |
| C904 | CEAT471M25 | CEAT102M16(P35) |
| C906 | CEAT102M16(P35) | CEAT221M25 |
| C907 | Not used | CEAT221M25 |

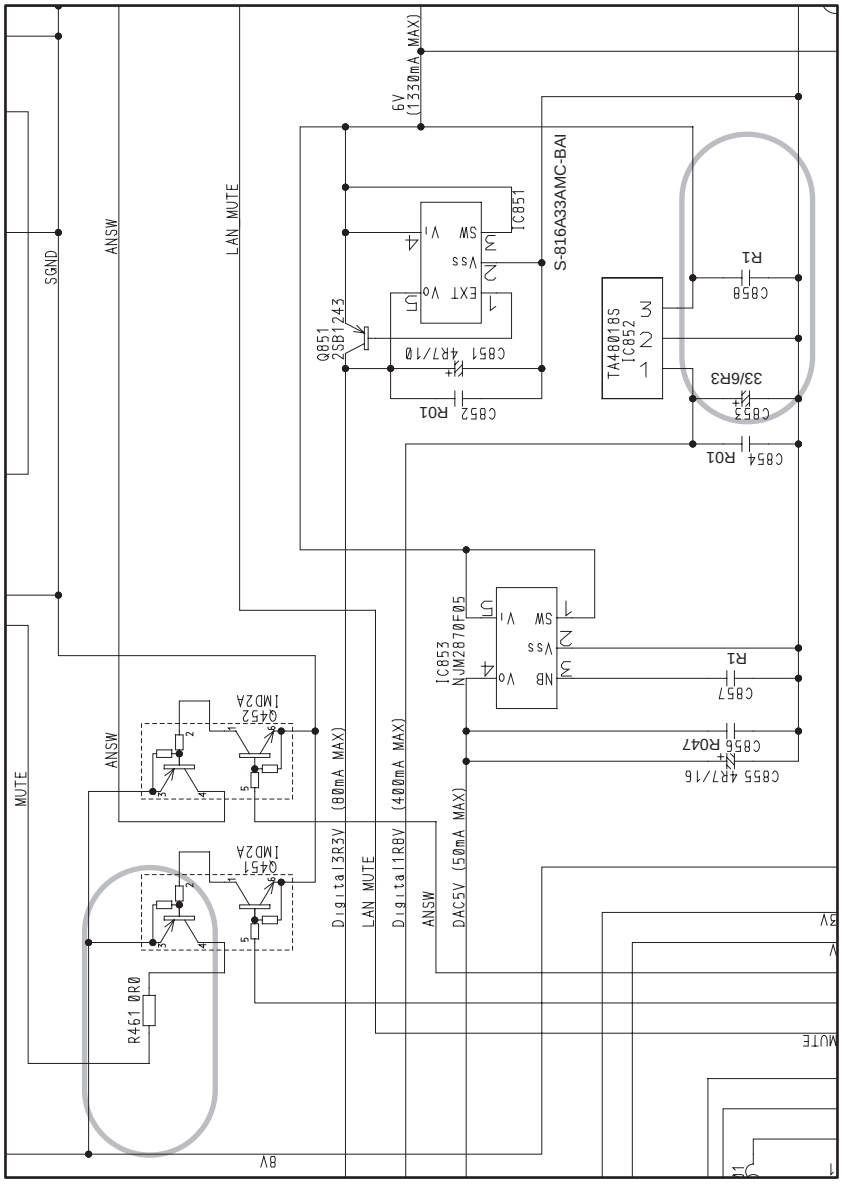
Page 13 5-E




Page 15 6-C



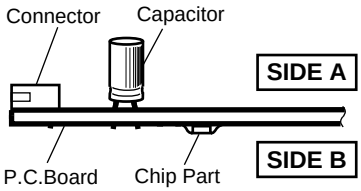
Page 12 3-B(R461)
Page 15 5-F(C858)



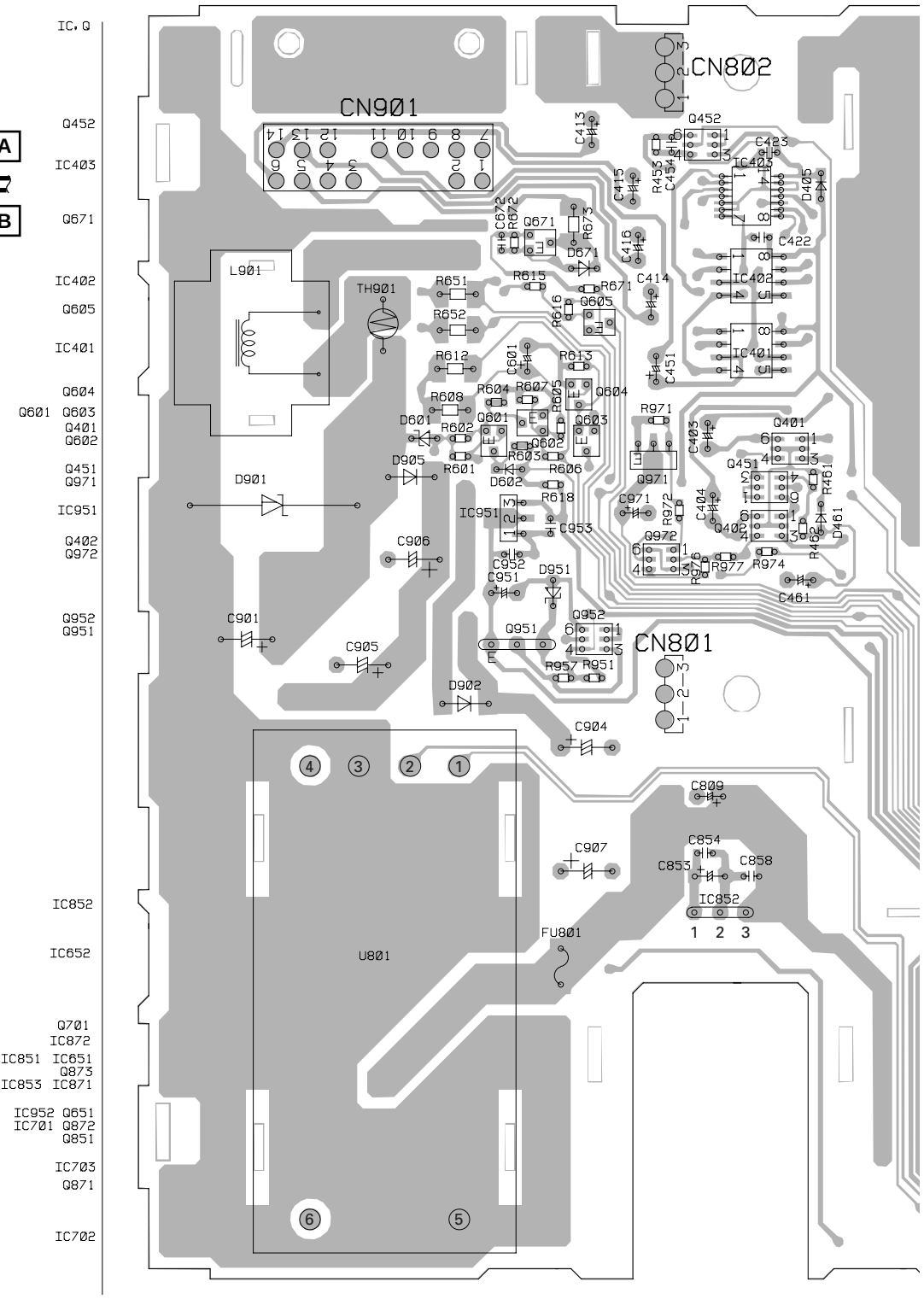
# PCB CONNECTION DIAGRAM
## MAIN UNIT

**NOTE FOR PCB DIAGRAMS**

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

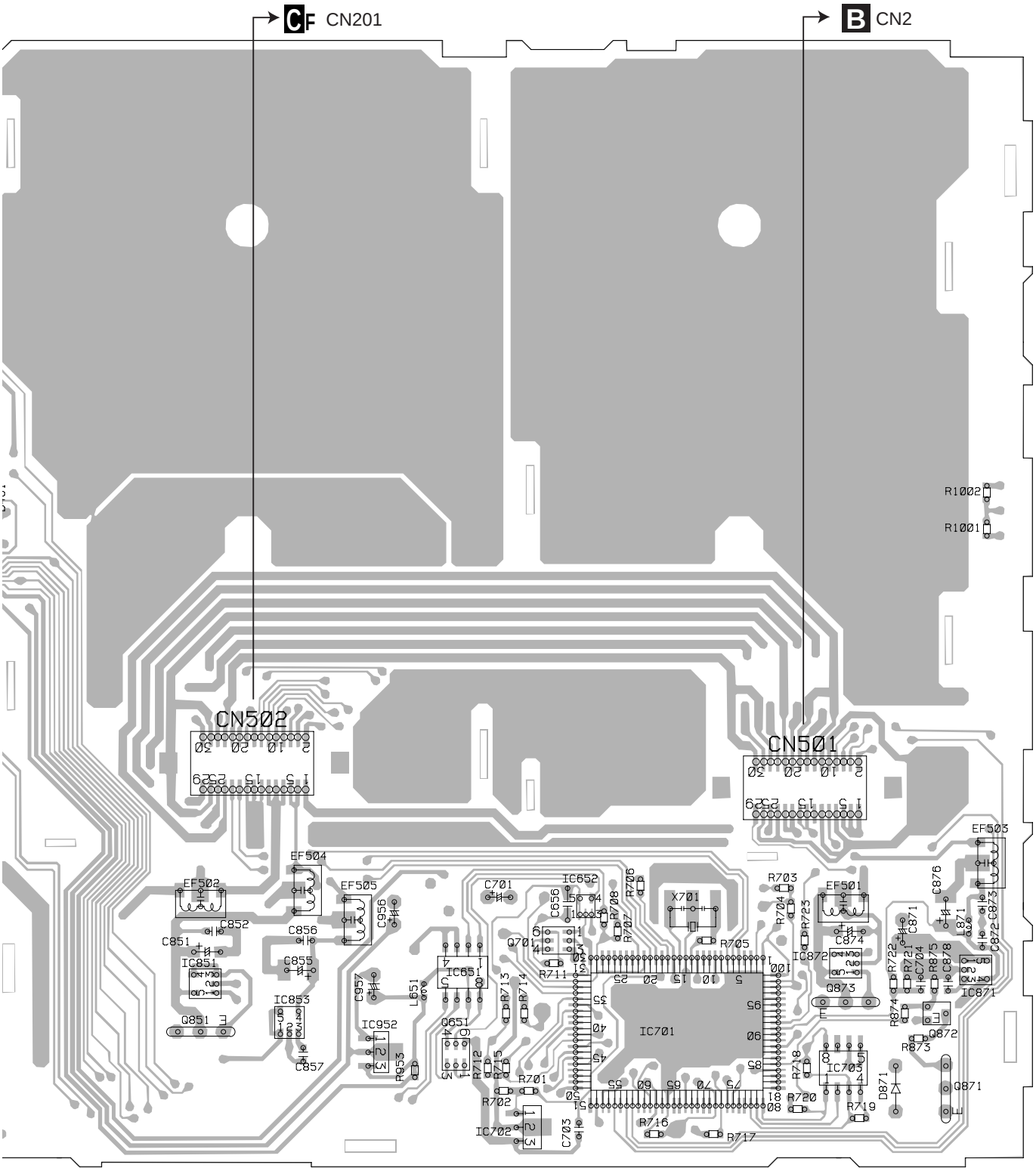



AF MAIN UNIT



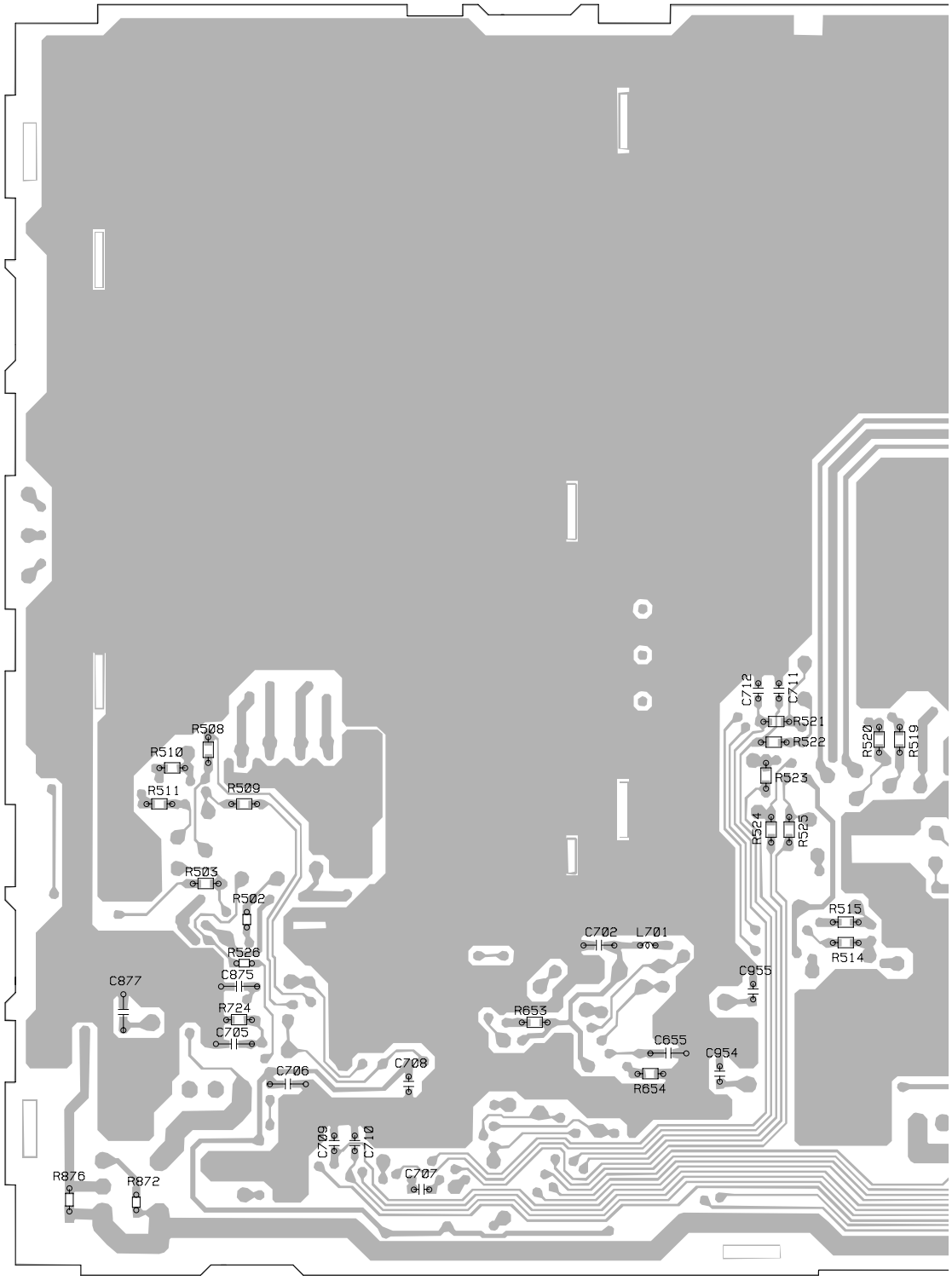

AF

SIDE A


CF CN201
B CN2
CN502
CN501
EF502
EF504
EF505
EF503
EF501
C852
C851
C856
C855
C857
C956
C957
C701
C656
C651
C703
C874
C872
C873
C876
C871
C878
C875
C704
IC851
IC853
IC952
IC651
IC652
IC701
IC702
IC703
IC872
IC871
Q851
Q651
Q701
Q873
Q872
Q871
X701
L651
L871
R1002
R1001
R703
R704
R705
R706
R707
R708
R711
R712
R713
R714
R715
R716
R717
R718
R719
R720
R721
R722
R723
R701
R702
R953
R873
R874
D871

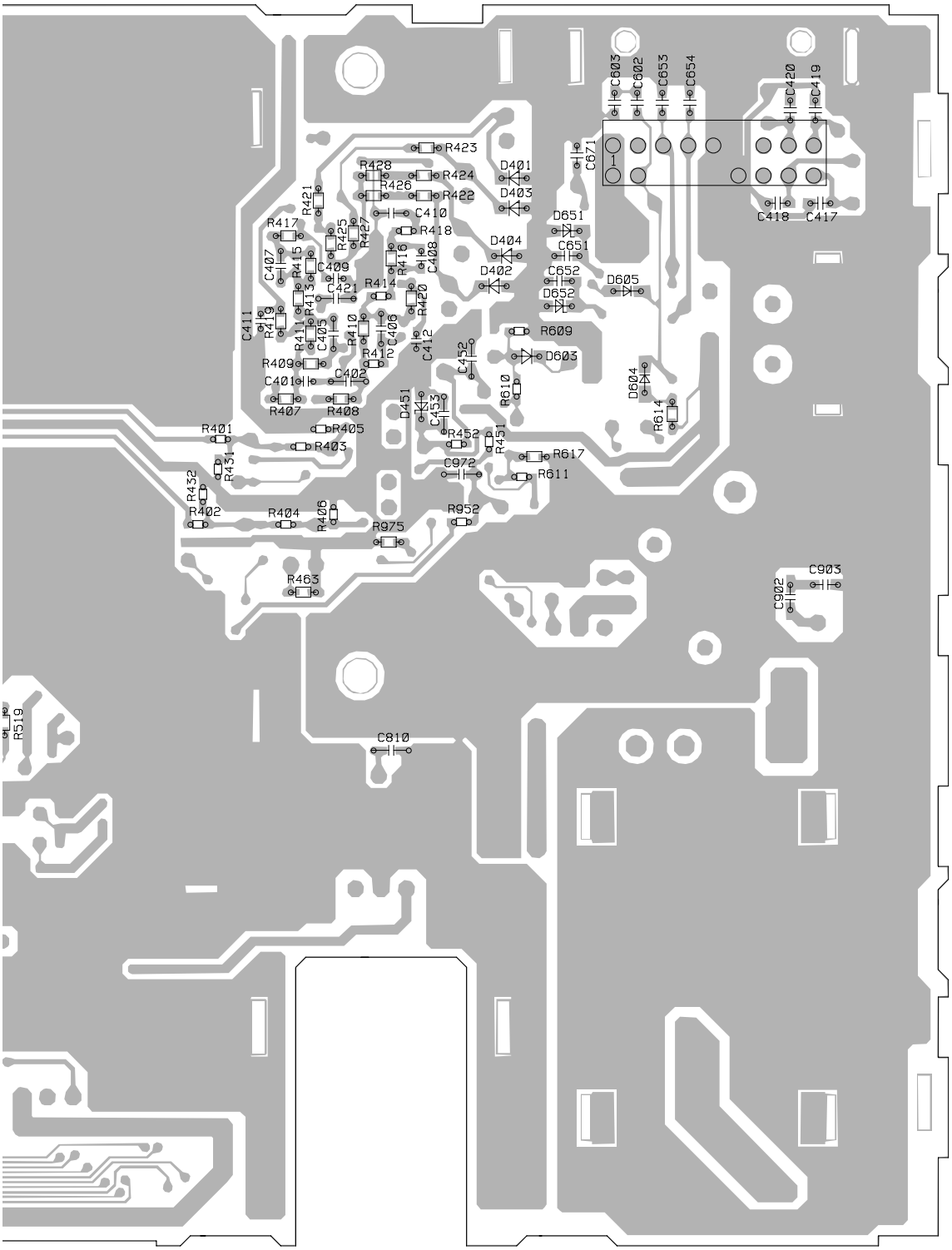
AF

## AF MAIN UNIT




AF

**SIDE B**

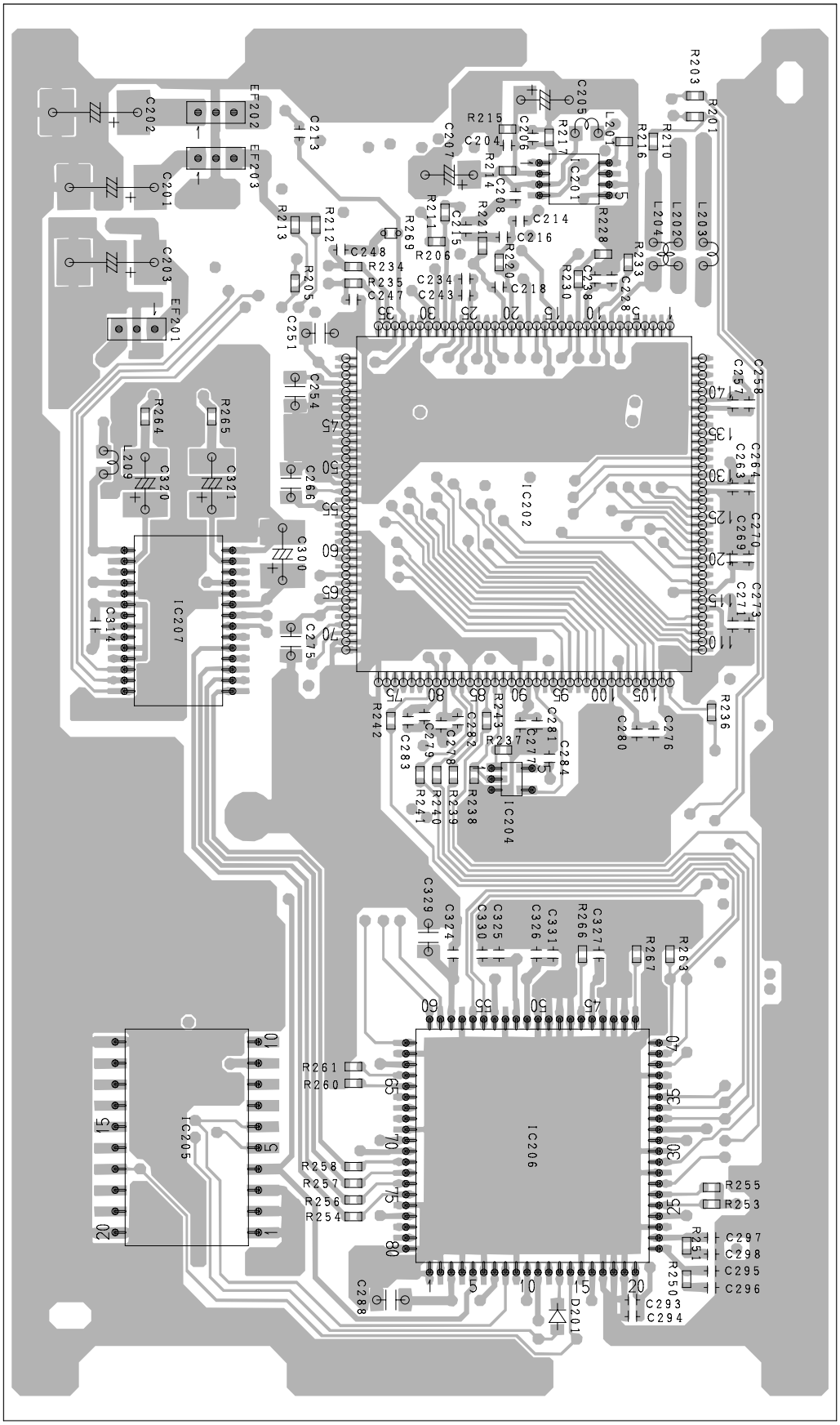

C603
C602
C653
C654
C420
C419
C671
C418
C417
R423
R428
R424
R426
R422
D401
D403
C410
R418
D651
C651
D404
D402
C652
D652
D605
R609
D603
D604
R614
R610
C452
C453
D451
R452
R451
R617
R611
C972
R401
R405
R403
R431
R432
R402
R404
R406
R975
R952
R463
C903
C902
C810
R519
R417
R421
R425
R427
C407
R415
C409
C421
R414
R416
C408
R420
R413
C411
R419
R411
C403
R410
C406
C412
R409
R410
C402
C401
R407
R408

AF

# DIGITAL UNIT

## CF DIGITAL UNIT

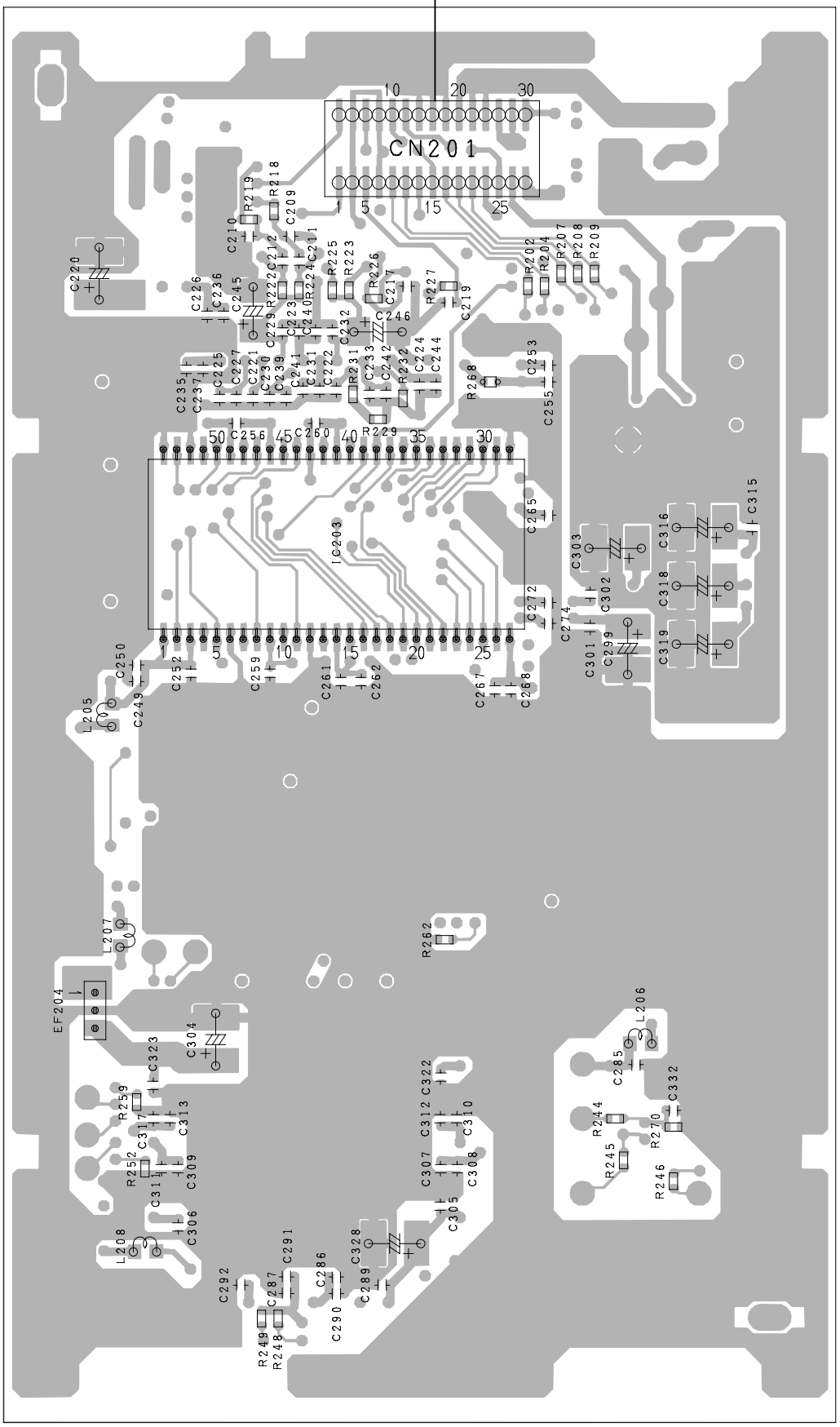
**SIDE A**



CF DIGITAL UNIT

SIDE B

AF CN502



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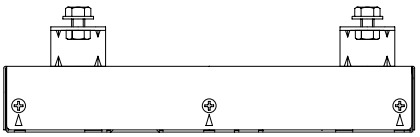
# *Service Manual*

**HONDA**



GEX-M7027XMZH/XN/UC

**ORDER NO.**
**CRT3005**

**XM SATELLITE DIGITAL TUNER**

# GEX-M7027XMZH XN/UC

| VEHICLE | DESTINATION | PRODUCED AFTER | HONDA PART No. | ID No. | PIONEER MODEL No. |
|---|---|---|---|---|---|
| ACURA RL | U.S.A. | January 2003 | 39820-SZ3-A010-M1 | ——— | GEX-M7027XMZH/XN/UC |

For details, refer to "Important symbols for good services" on the next page.

**PIONEER CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
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**PIONEER EUROPE NV** Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE.LTD.** 253 Alexandra Road, #04-01, Singapore 159936

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**K-ZZD. JAN. 2003 Printed in Japan**

# SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

**[ Important symbols for good services ]**
In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

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# 1. SPECIFICATIONS

**General**

Power source ..... 13.2 V DC (10.8 – 15.2 V allowable)
Grounding system ..... Negative type
Backup current ..... 2 mA or less
Dimensions ..... 187.5 (W) x 30 (H) x 130 (D) mm
Weight ..... 0.82 kg

**XM tuner**

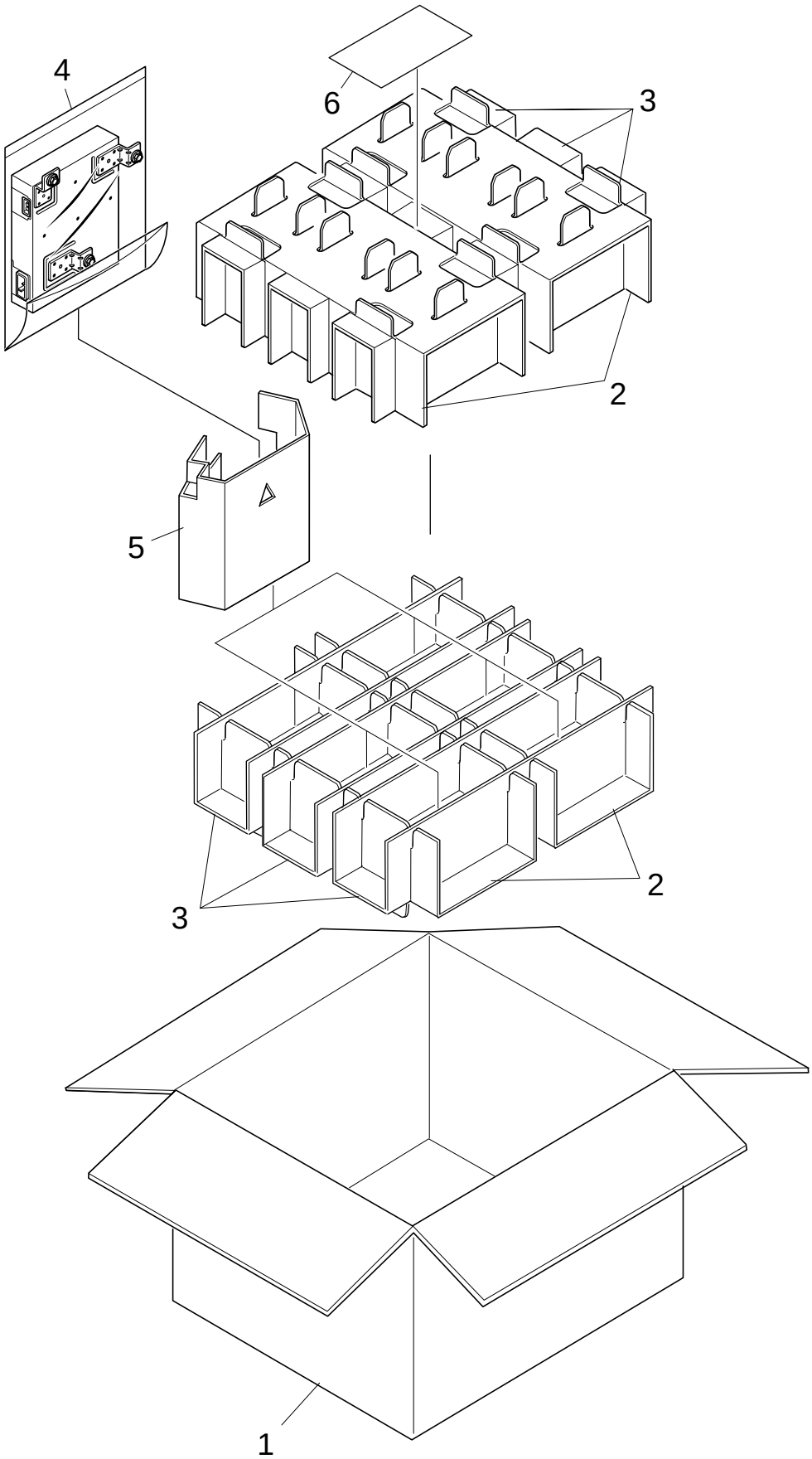
Frequency range ..... 2,332.50 – 2,345.00 MHz
Usable sensitivity
Satellite ..... – 94.0 dBm
Terrestrial ..... – 92.0 dBm

**Audio**

Signal-to-noise ratio ..... 78 dB or more (IHF-A, 20kHz LPF)
Separation ..... 58 dB or more (400Hz HPF, 20kHz LPF)
Output Level ..... 8.2 dBs ± 2 dB (1kHz)

# 2. EXPLODED VIEWS AND PARTS LIST

## 2.1 PACKING



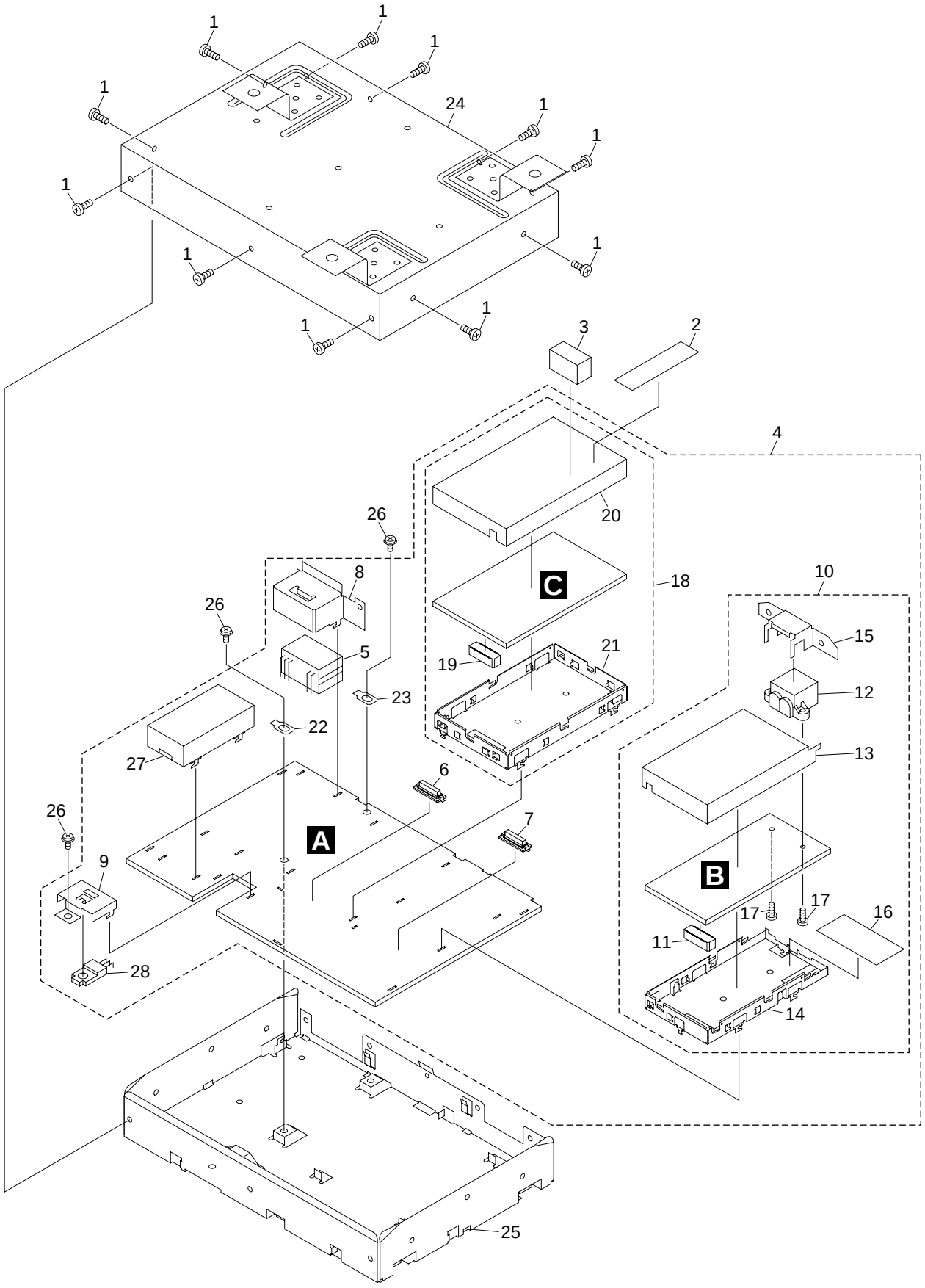
**NOTE:**

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
  ( In the case of no amount instructions, apply as you think it appropriate.)

## ● PACKING SECTION PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Contain Box | CHL4928 |
| | 2 | Protector | CHP2656 |
| | 3 | Protector | CHP2657 |
| | 4 | Polyethylene Bag | CEG1297 |
| | 5 | Protector | CHP2655 |
| * | 6 | Card | CRL2374 |

## 2.2 EXTERIOR

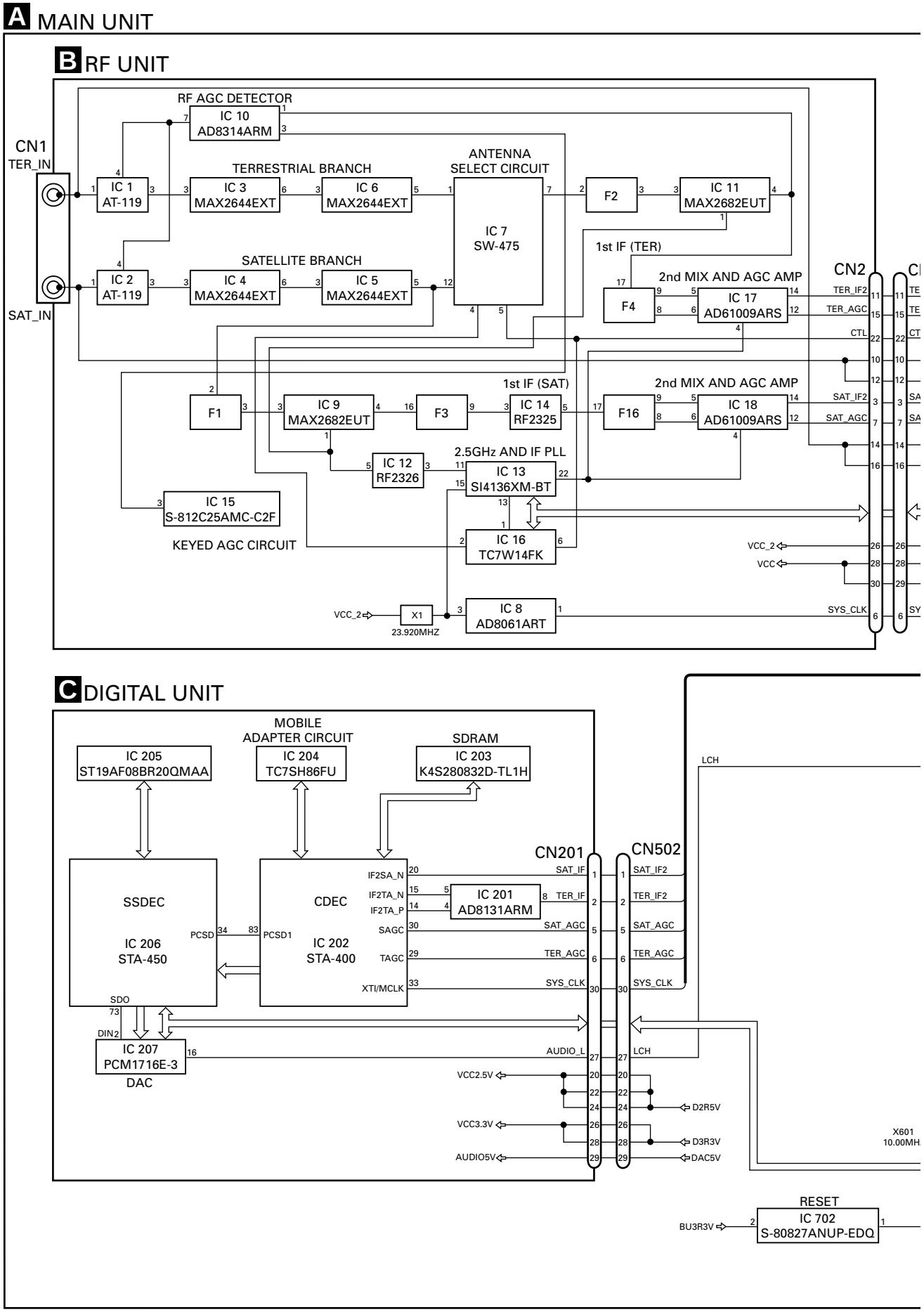

1
24
3
2
4
20
26
8
C
18
10
26
5
19
21
15
23
12
22
27
6
13
26
7
A
B
9
17
17
16
11
28
14
25

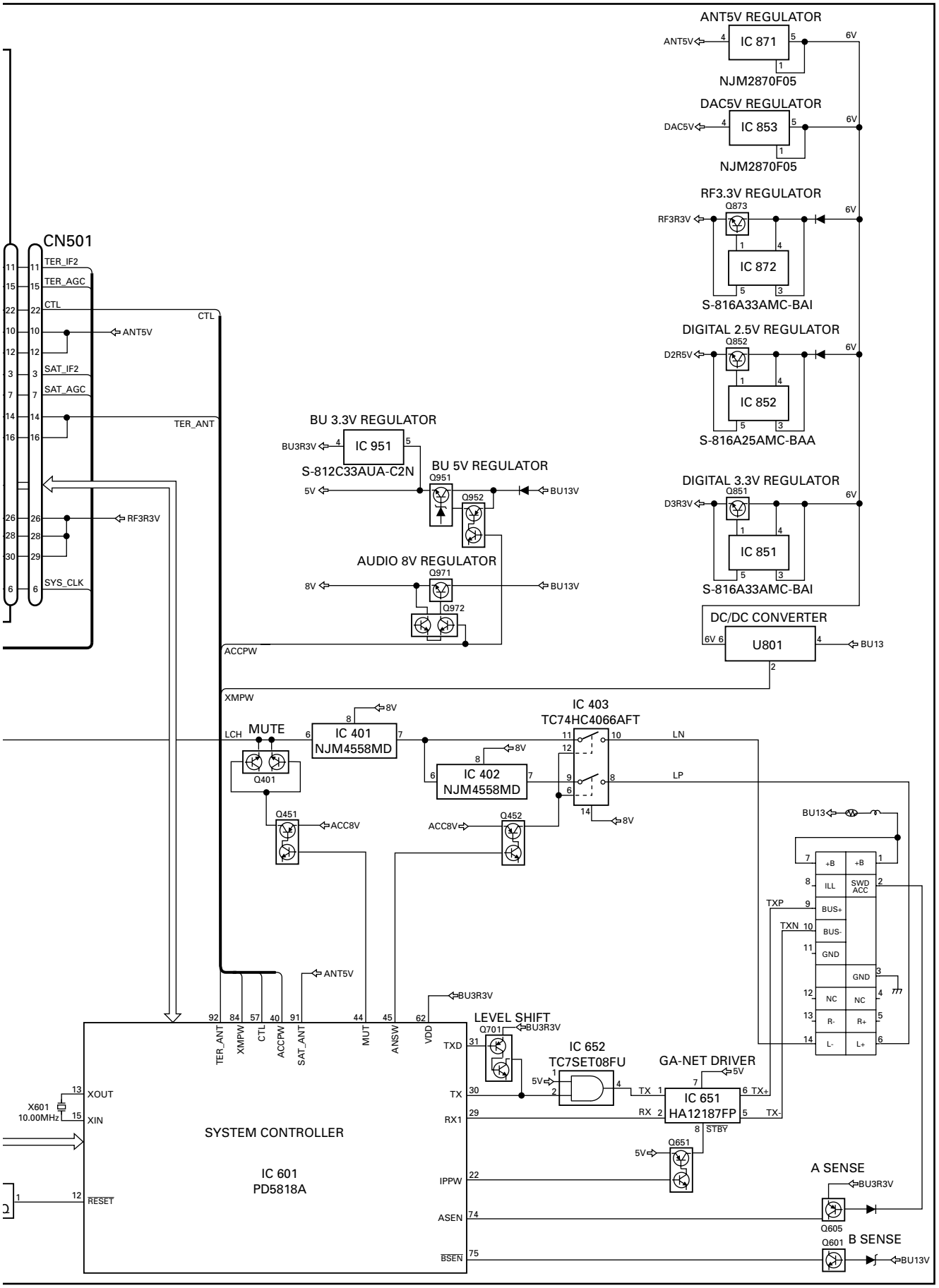
## ● EXTERIOR SECTION PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw | BSZ30P060FTC |
| | 2 | Tape | CNM8263 |
| | 3 | Cushion | CNM8321 |
| | 4 | Main Unit | CWM8561 |
| | 5 | Connector(CN901) | CKM1208 |
| | 6 | Connector(CN501) | CKS4065 |
| | 7 | Connector(CN502) | CKS4065 |
| | 8 | Holder | CND1263 |
| | 9 | Holder | CND1284 |
| | 10 | RF Unit | CWE1683 |
| | 11 | Connector(CN2) | CKS4667 |
| | 12 | Connector(CN1) | CKX1068 |
| | 13 | Case | CND1264 |
| | 14 | Holder | CND1265 |
| | 15 | Holder | CND1266 |
| | 16 | Insulator | CNM7993 |
| | 17 | Screw | PRZ30P060FTC |
| | 18 | Digital Unit | CWX2749 |
| | 19 | Connector(CN201) | CKS4667 |
| | 20 | Case | CND1267 |
| | 21 | Holder | CND1268 |
| | 22 | Terminal(CN801) | VNF1084 |
| | 23 | Terminal(CN802) | VNF1084 |
| | 24 | Case Unit | CXB9640 |
| | 25 | Chassis Unit | CXB9753 |
| | 26 | Screw | ISS26P055FTC |
| | 27 | Power Supply Unit(U801) | CWR1072 |
| | 28 | Transistor(Q852) | 2SB1185 |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

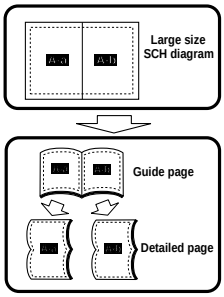
## 3.1 BLOCK DIAGRAM



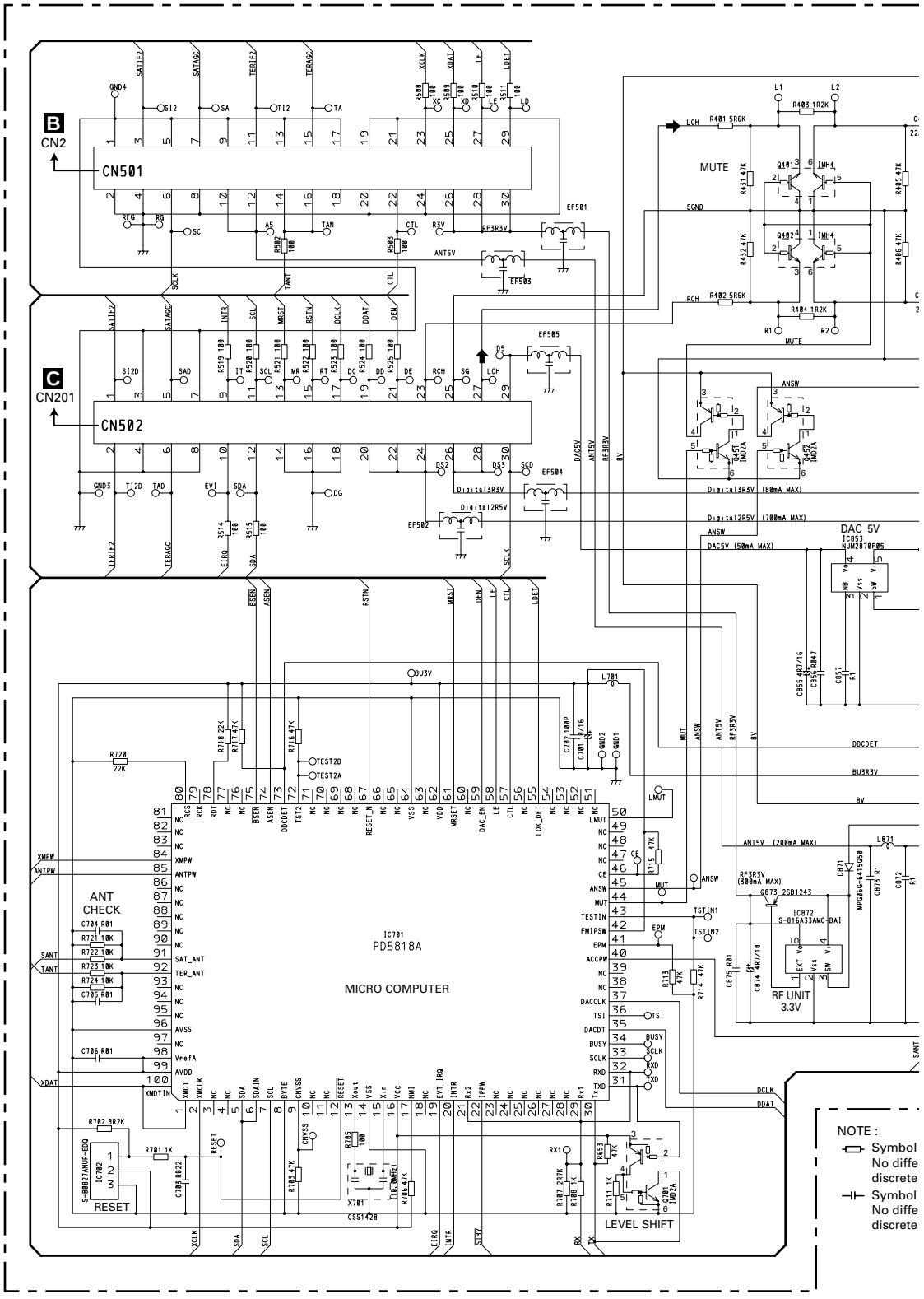

ANT5V REGULATOR
IC 871
NJM2870F05
DAC5V REGULATOR
IC 853
NJM2870F05
RF3.3V REGULATOR
Q873
IC 872
S-816A33AMC-BAI
DIGITAL 2.5V REGULATOR
Q852
IC 852
S-816A25AMC-BAA
DIGITAL 3.3V REGULATOR
Q851
IC 851
S-816A33AMC-BAI
CN501
TER_IF2
TER_AGC
CTL
ANT5V
SAT_IF2
SAT_AGC
TER_ANT
RF3R3V
SYS_CLK
BU 3.3V REGULATOR
IC 951
S-812C33AUA-C2N
BU 5V REGULATOR
Q951
Q952
AUDIO 8V REGULATOR
Q971
Q972
DC/DC CONVERTER
U801
ACCPW
XMPW
IC 403
TC74HC4066AFT
MUTE
IC 401
NJM4558MD
IC 402
NJM4558MD
Q401
Q451
Q452
ACC8V
LCH
LN
LP
BU13
BU3R3V
LEVEL SHIFT
Q701
IC 652
TC7SET08FU
GA-NET DRIVER
IC 651
HA12187FP
STBY
Q651
TXP
TXN
SYSTEM CONTROLLER
IC 601
PD5818A
X601
10.00MHz
XOUT
XIN
RESET
TER_ANT
XMPW
CTL
ACCPW
SAT_ANT
MUT
ANSW
VDD
TXD
TX
RX1
IPPW
ASEN
BSEN
A SENSE
Q605
B SENSE
Q601

# 3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

**Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".**



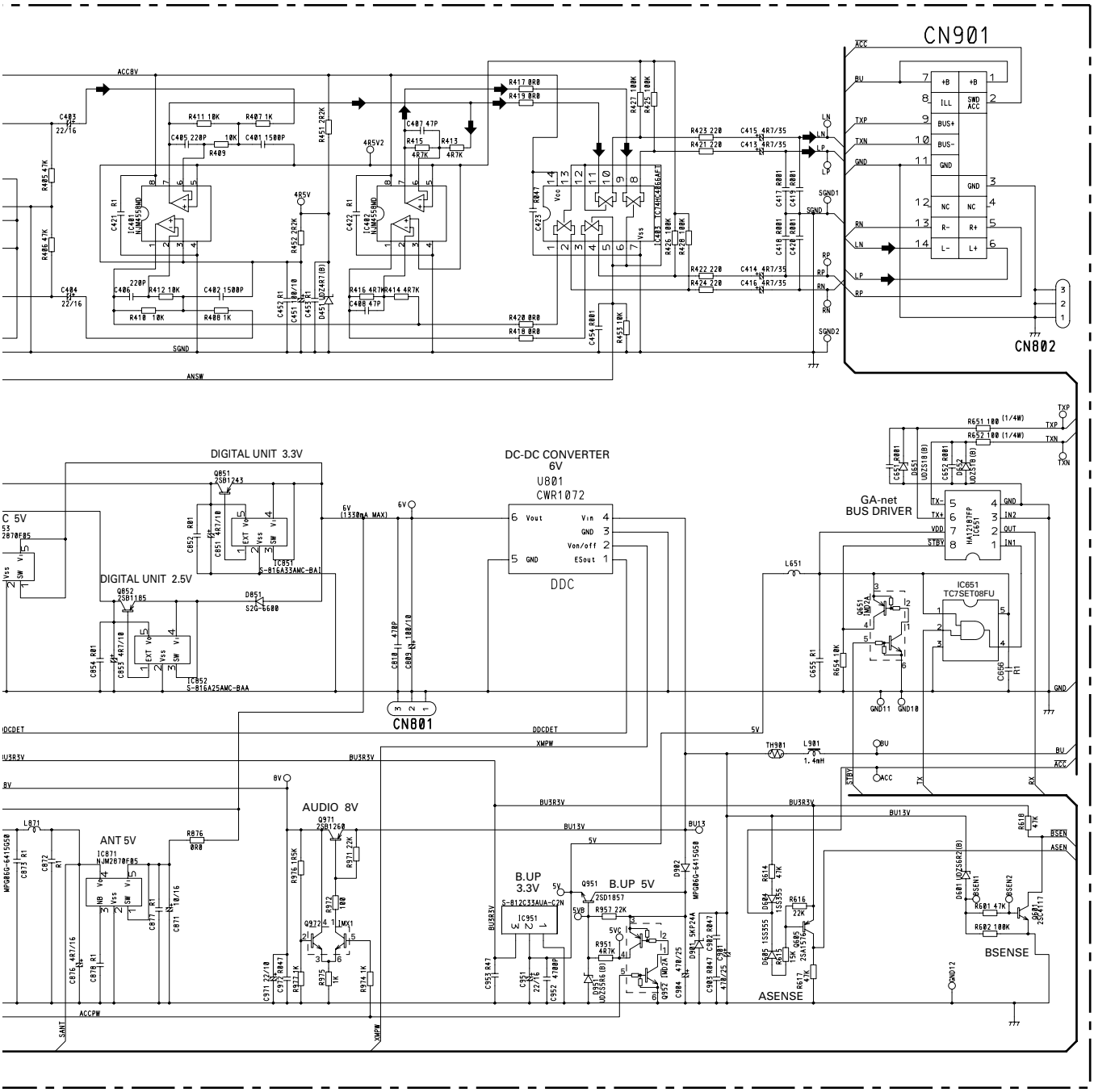

**A-a**




**A**

# A-b

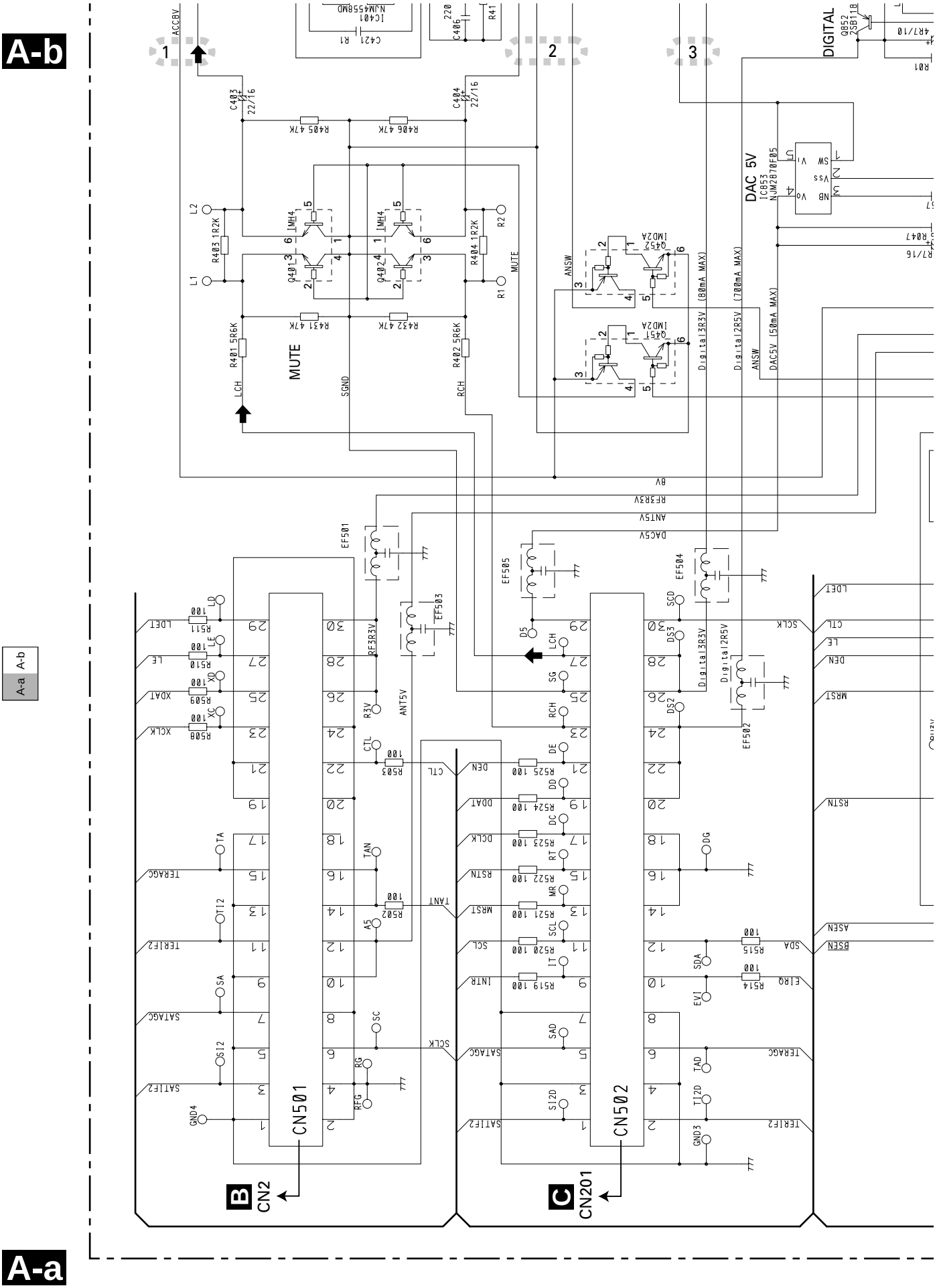
**A** MAIN UNIT

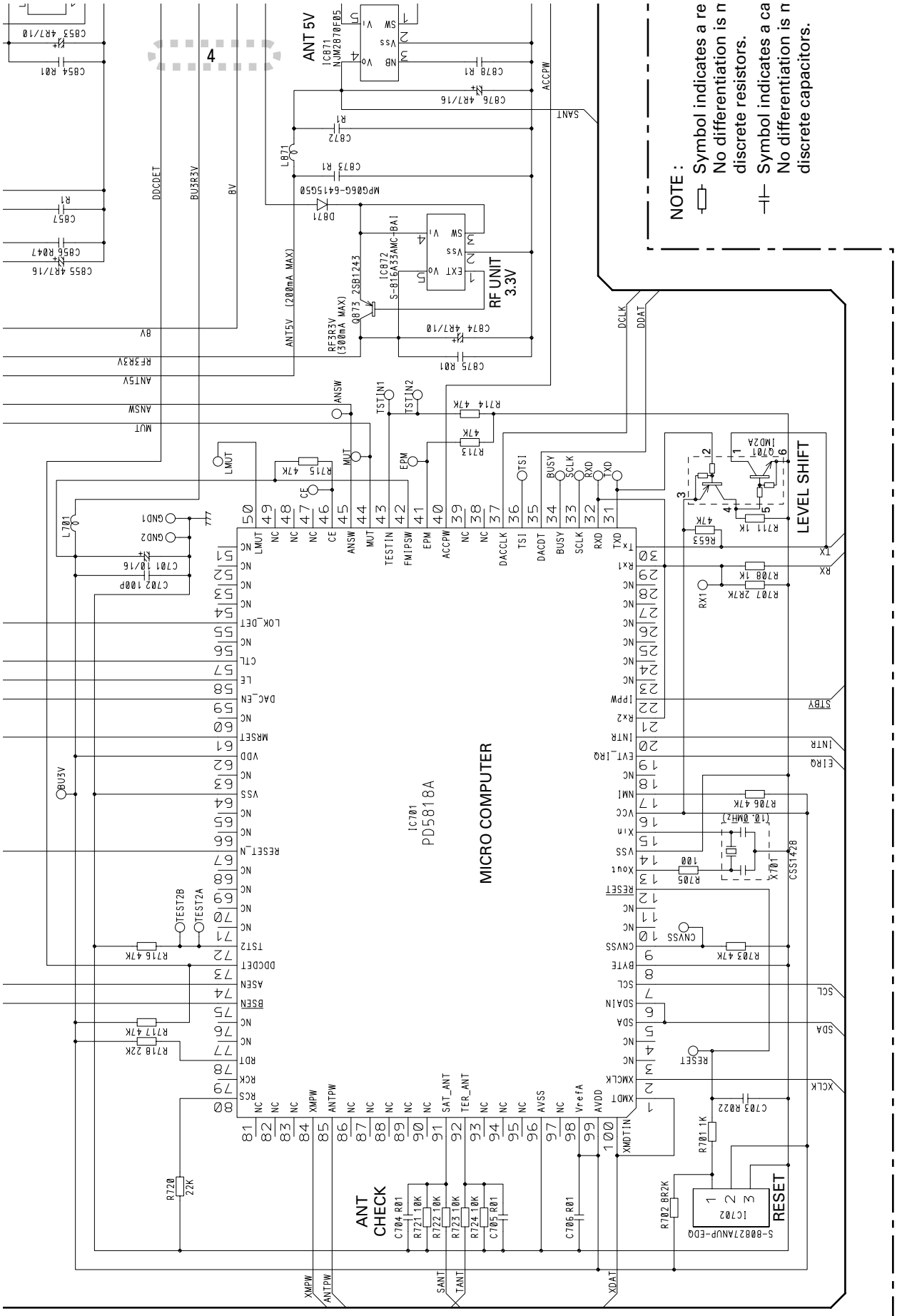


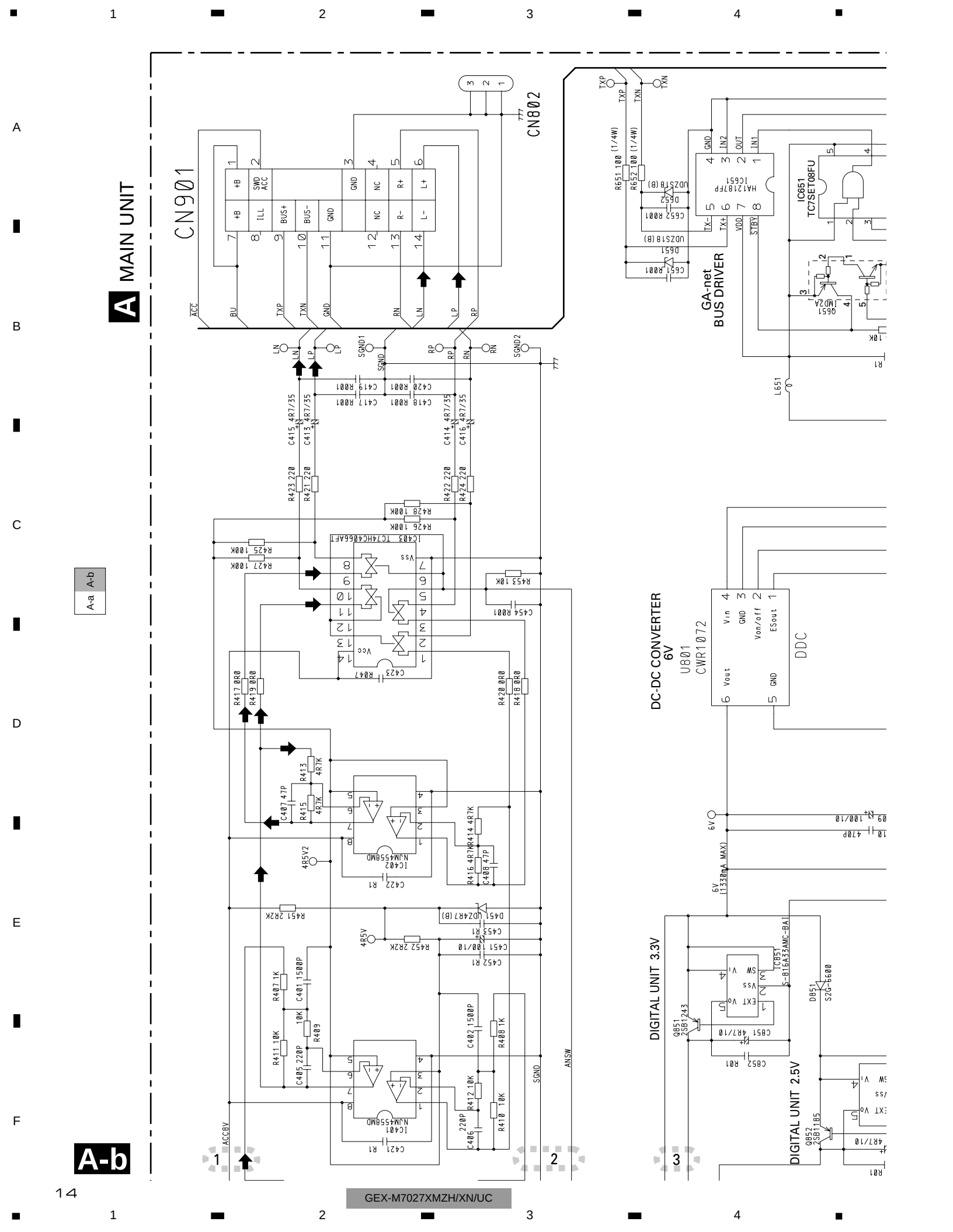

TE :

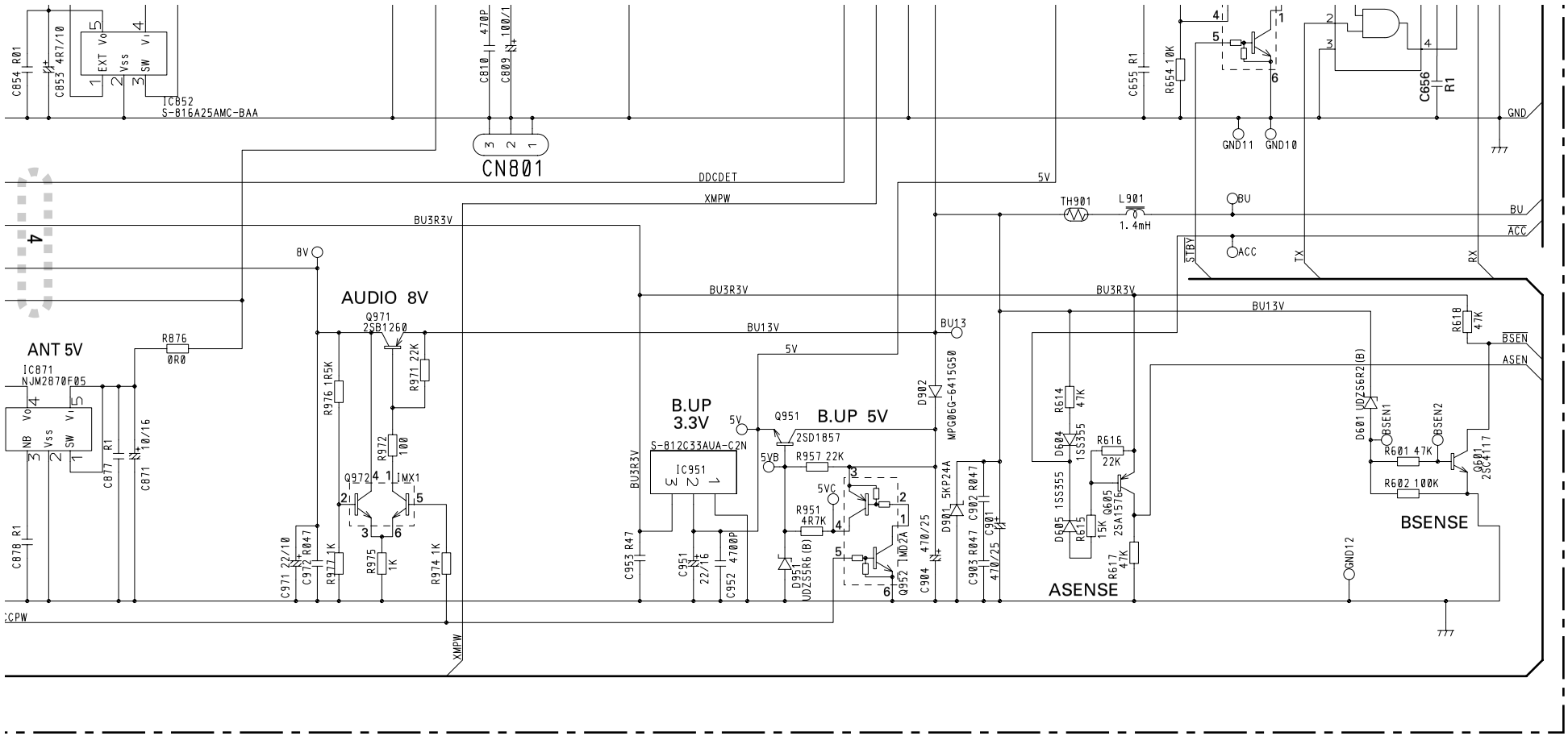
- Symbol indicates a resistor.
  No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
  No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022


A-b
A-a
A-b
A-a
CN2
CN201
CN501
CN502
MUTE
DAC 5V
DIGITAL
ACCBV
8V
RF3R3V
ANT5V
DAC5V
EF501
EF502
EF503
EF504
EF505
Digital3R3V
Digital2R5V
DAC5V (50mA MAX)
ANSW
LCH
RCH
SGND
L1
L2
R1
R2
LD
LE
XD
XC
CTL
DEN
DDAT
DCLK
RSTN
MRST
SCLK
SCL
SDA
INTR
SAD
SCD
SCLK
LDET
CLT
LE
DEN
MRST
RSTN
ASEN
BSEN
EIRQ
TERAGC
TERIF2
SATAGC
SATIF2
TAD
TI2D
SI2D
GND3
GND4
TA
TAN
TANT
A5
SA
SC
SI2
RG
RFG
SG
DG
DS3
DS2
DS1
DS0
DD
DC
RT
MR
SCI
IT
EV1
EV2
TAD
TI2D
SI2D
SAD
SCD
SDA
SCL
INTR
EIRQ
BSEN
ASEN
MRST
RSTN
DEN
DDAT
DCLK
SCLK
CTL
LDET
LE
XDAT
XCLK
TERAGC
TERIF2
SATAGC
SATIF2
GND4
GND3


NOTE :
Symbol indicates a re
No differentiation is n
discrete resistors.
Symbol indicates a ca
No differentiation is n
discrete capacitors.
ANT 5V
RF UNIT 3.3V
MICRO COMPUTER
IC701
PD5818A
LEVEL SHIFT
ANT CHECK
RESET
A-b
A-a


A MAIN UNIT
A-b
CN901
CN802
GA-net
BUS DRIVER
DC-DC CONVERTER
6V
U801
CWR1072
DDC
DIGITAL UNIT 3.3V
DIGITAL UNIT 2.5V
IC651
TC7SET08FU
HA12187FP
IC651
IC403 TC74HC4066AFT
IC402 NJM4558MD
IC401 NJM4558MD
IC851
S-816A33AMC-BAI
D851
S2G-6600
Q851
2SB1243
Q852
2SB1185
D651
UDZS18(B)
D652
UDZS18(B)
D451
UDZ4R7(B)
1
2
3




icates a resistor.
:iation is made between chip resistors and
istors.

icates a capacitor.
:iation is made between chip capacitors and
acitors.

Decimal points for resistor
and capacitor fixed values
are expressed as :
2.2→2R2
0.022→R022

GEX-M7027XMZH/XNUC

A-b

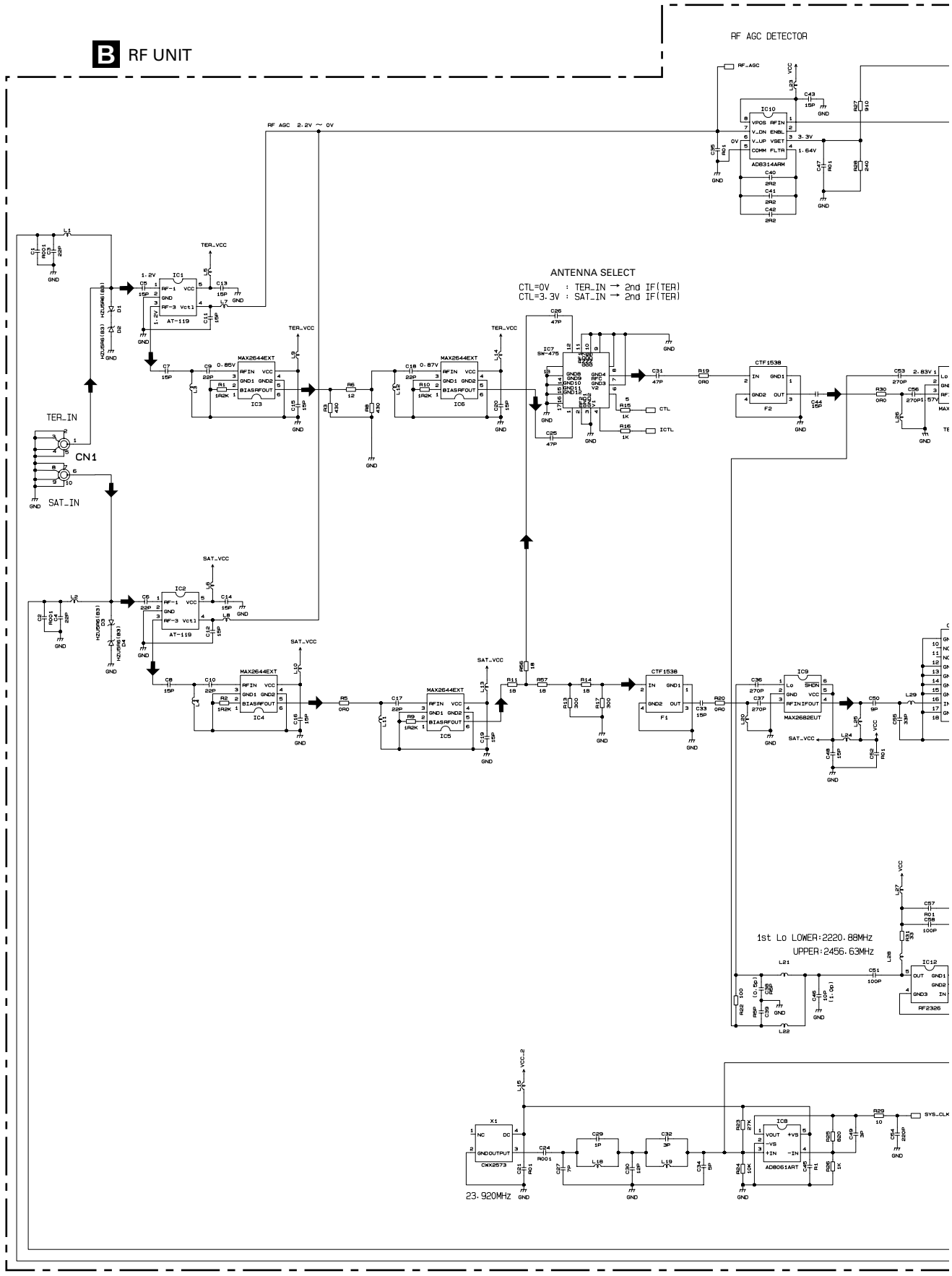
A-a A-b

15

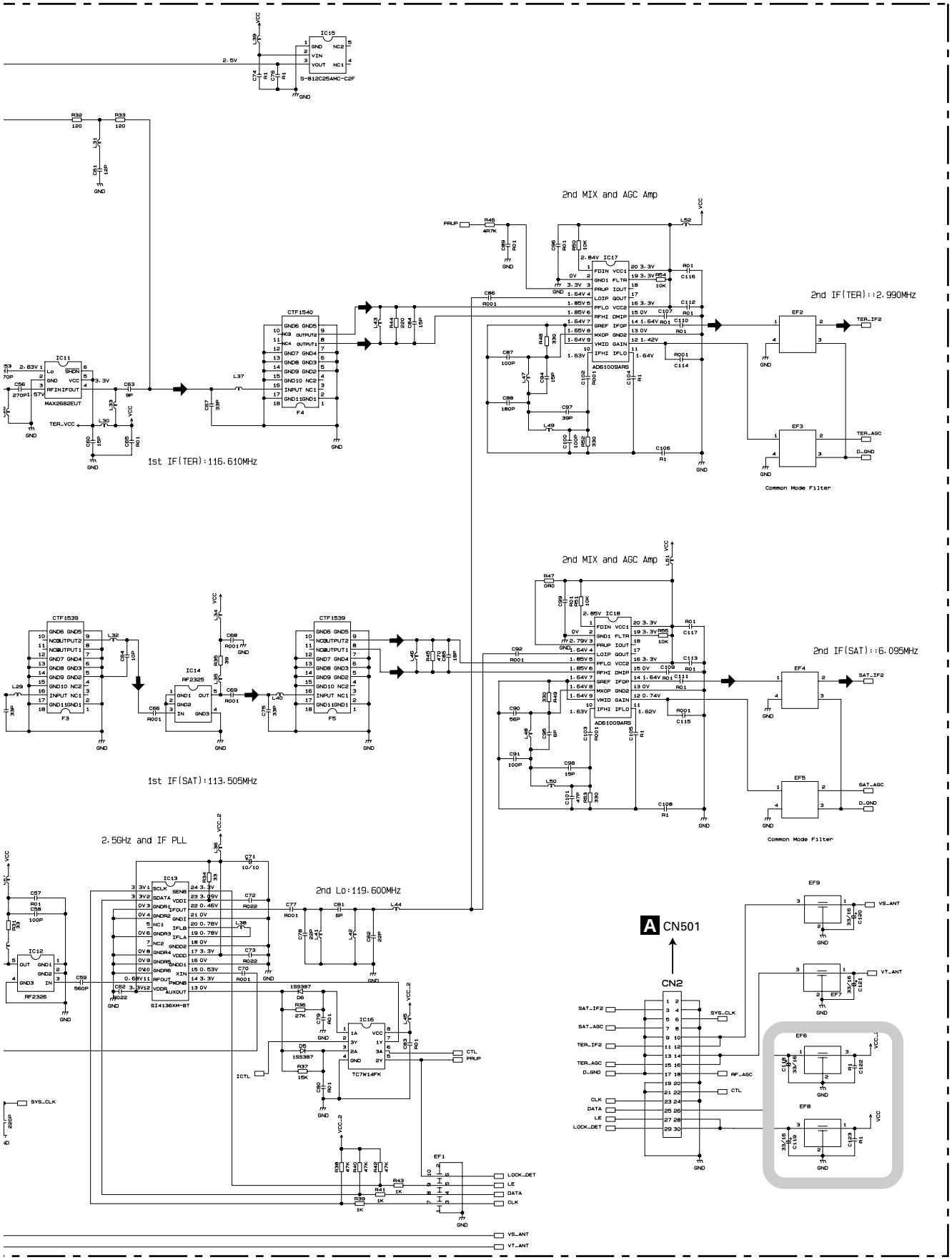
## 3.3 RF UNIT(GUIDE PAGE)

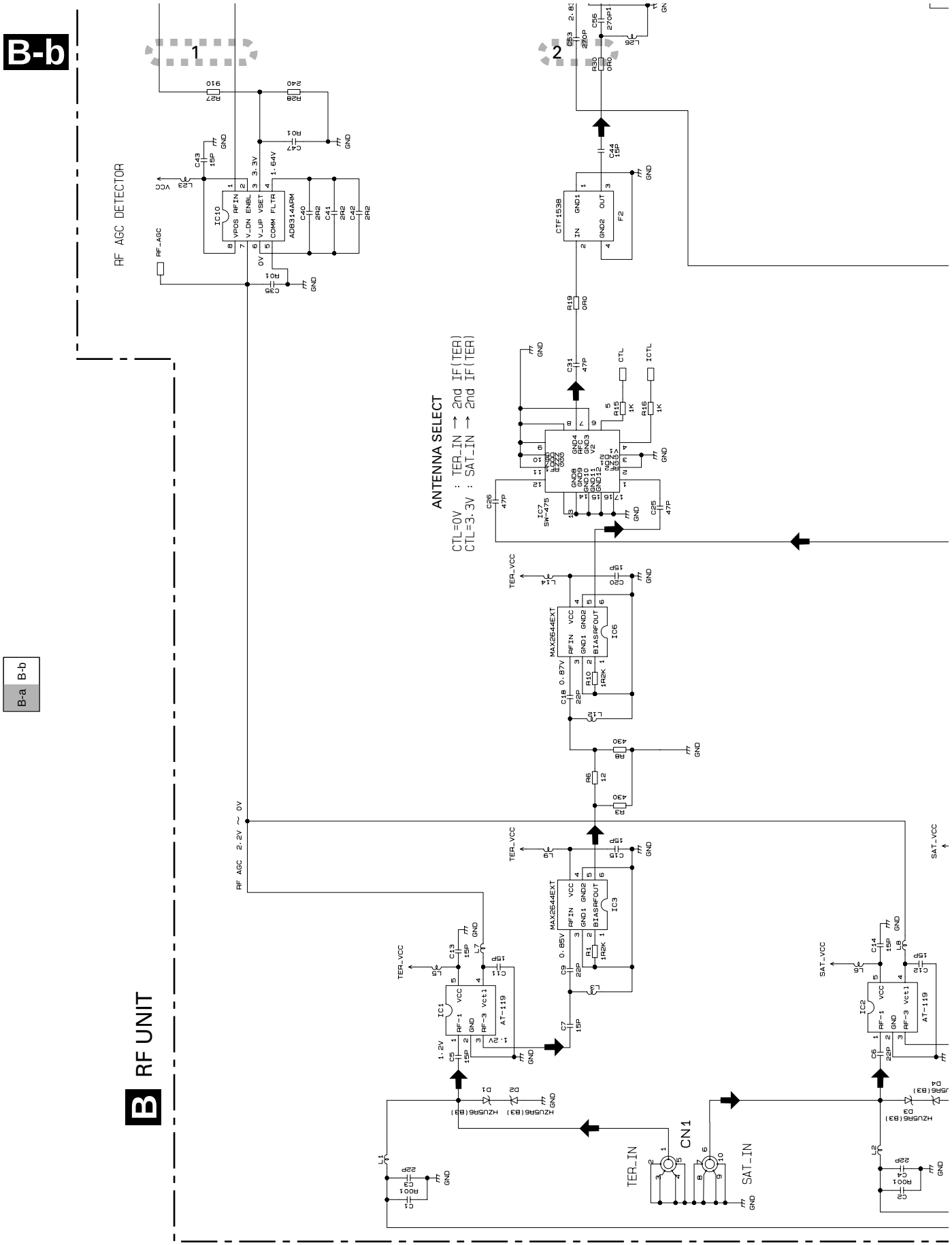
**B-a**

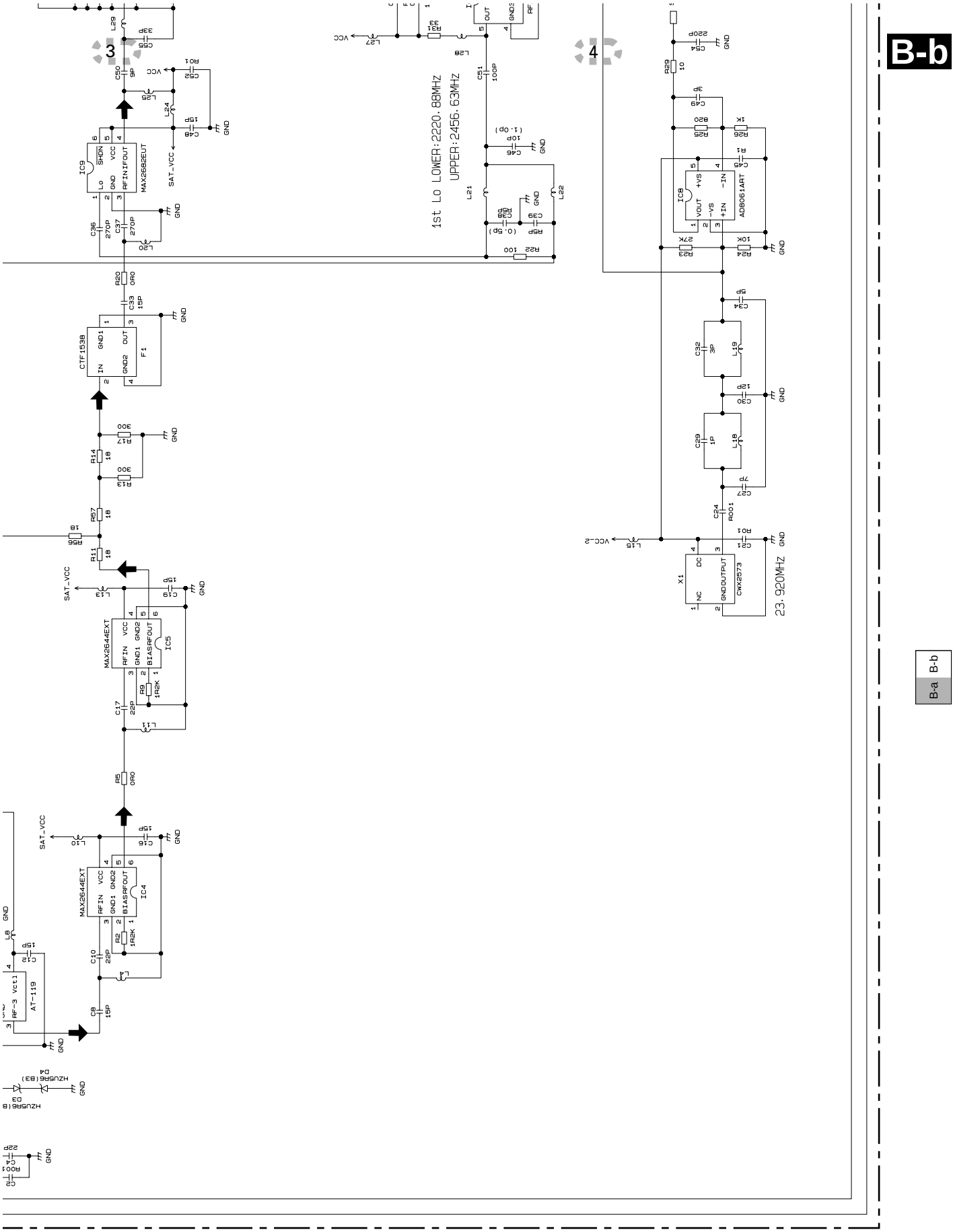
**B** RF UNIT

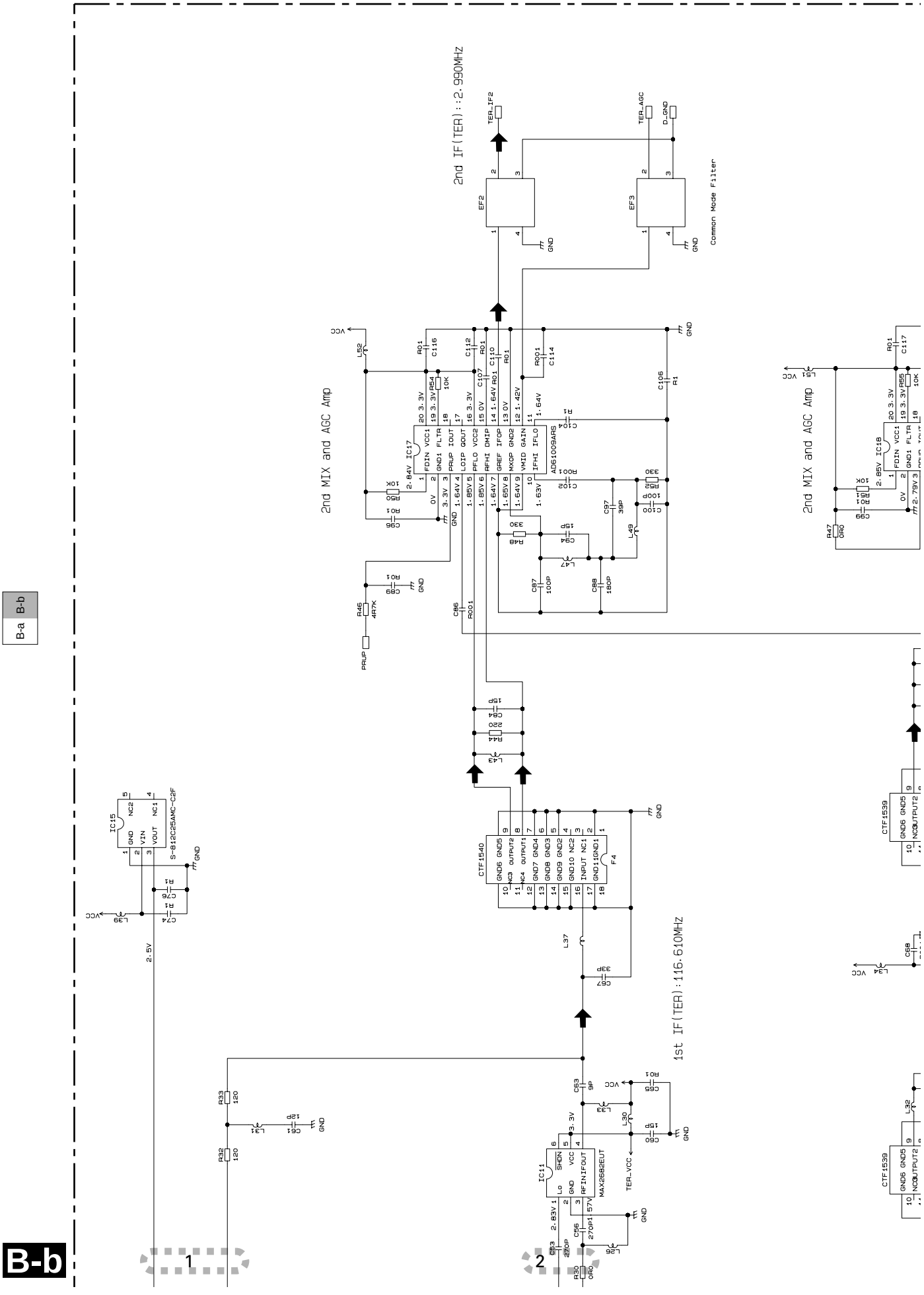


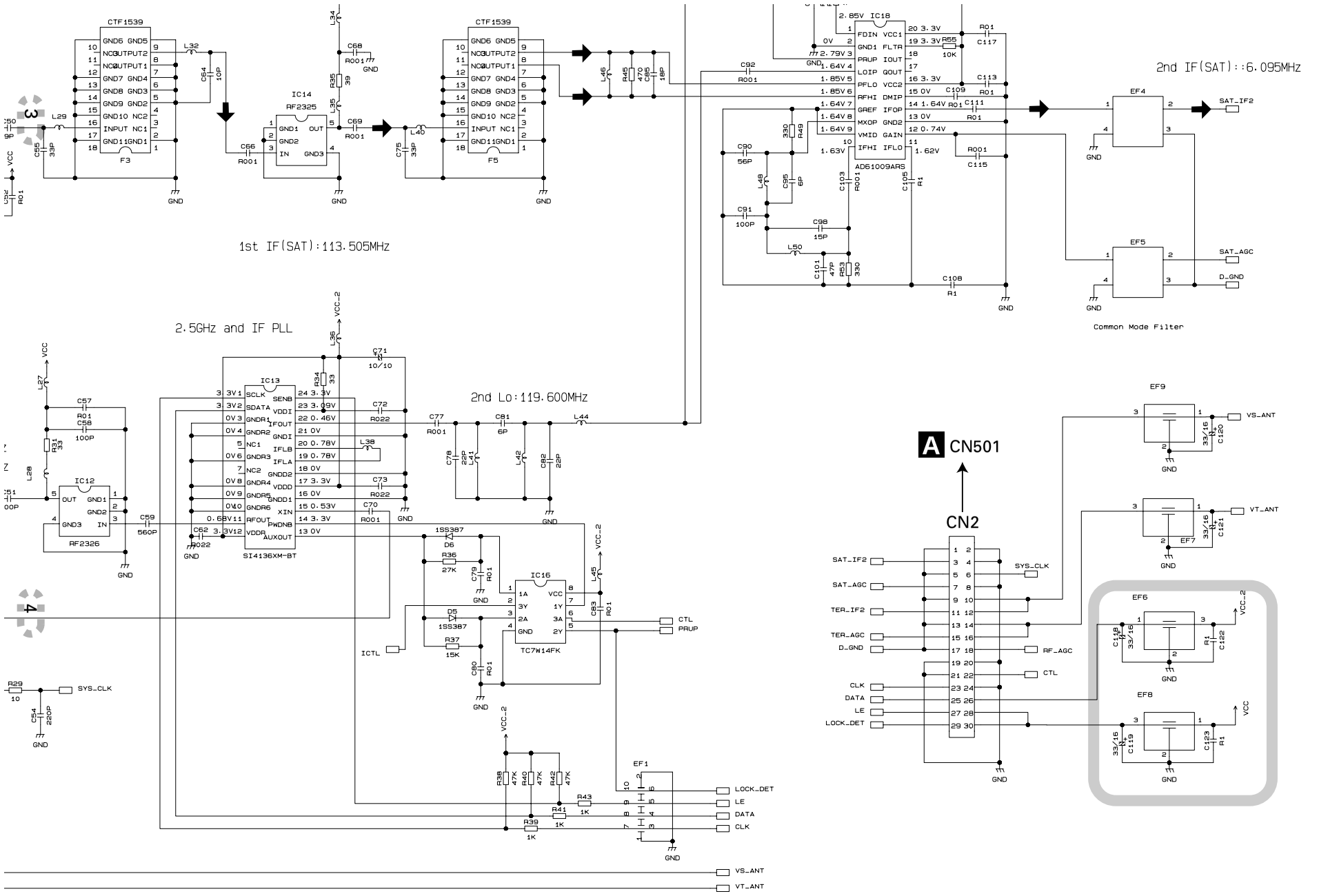

**B**


2nd MIX and AGC Amp
2nd IF(TER)::2.990MHz
1st IF(TER):116.610MHz
Common Mode Filter
2nd MIX and AGC Amp
2nd IF(SAT)::6.095MHz
1st IF(SAT):113.505MHz
Common Mode Filter
2.5GHz and IF PLL
2nd Lo:119.600MHz
A CN501
CN2


B-b
B-a
B RF UNIT
RF AGC DETECTOR
ANTENNA SELECT
CTL=0V : TER_IN → 2nd IF(TER)
CTL=3.3V : SAT_IN → 2nd IF(TER)
TER_IN
SAT_IN
CN1
RF AGC 2.2V ~ 0V
TER_VCC
SAT_VCC
GND

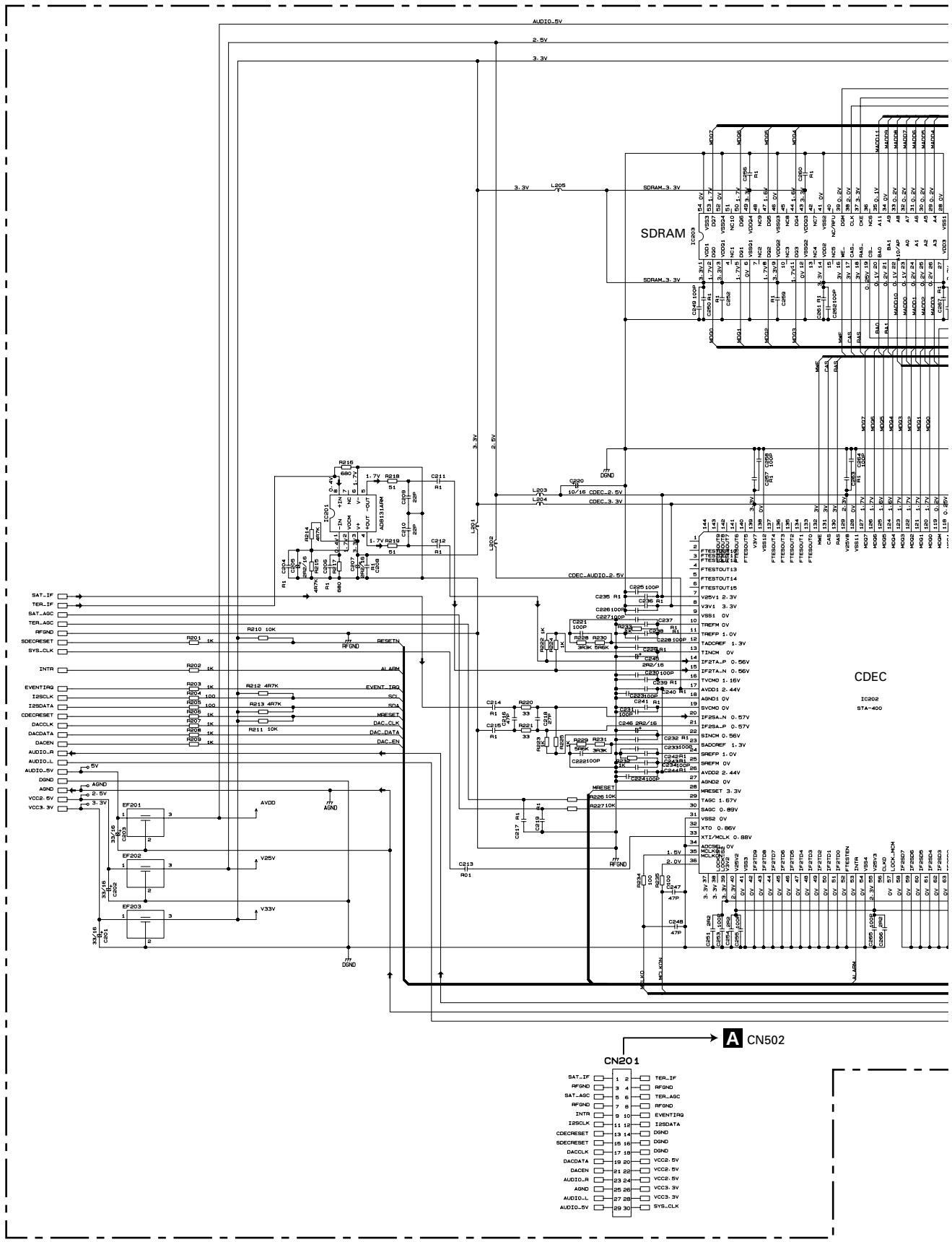

B-b
B-a
1st LO LOWER:2220.88MHz
UPPER:2456.63MHz
23.920MHz
MAX2644EXT
MAX2682EUT
CTF1538
AT-119
ADB061ART
CMX2573
HZU5R6(B3)
HZU5R6(B3)


B-a
B-b
B-b
2nd IF(TER)::2.990MHz
Common Mode Filter
2nd MIX and AGC Amp
2nd MIX and AGC Amp
1st IF(TER):116.610MHz
TER_IF2
TER_AGC
D_GND
EF2
EF3
GND
VCC
IC17
AD6109ARS
IC18
IC15
S-812C25AMC-C2F
CTF1540
CTF1539
F4
IC11
MAX2682EUT
TER_VCC
2.5V
1
2

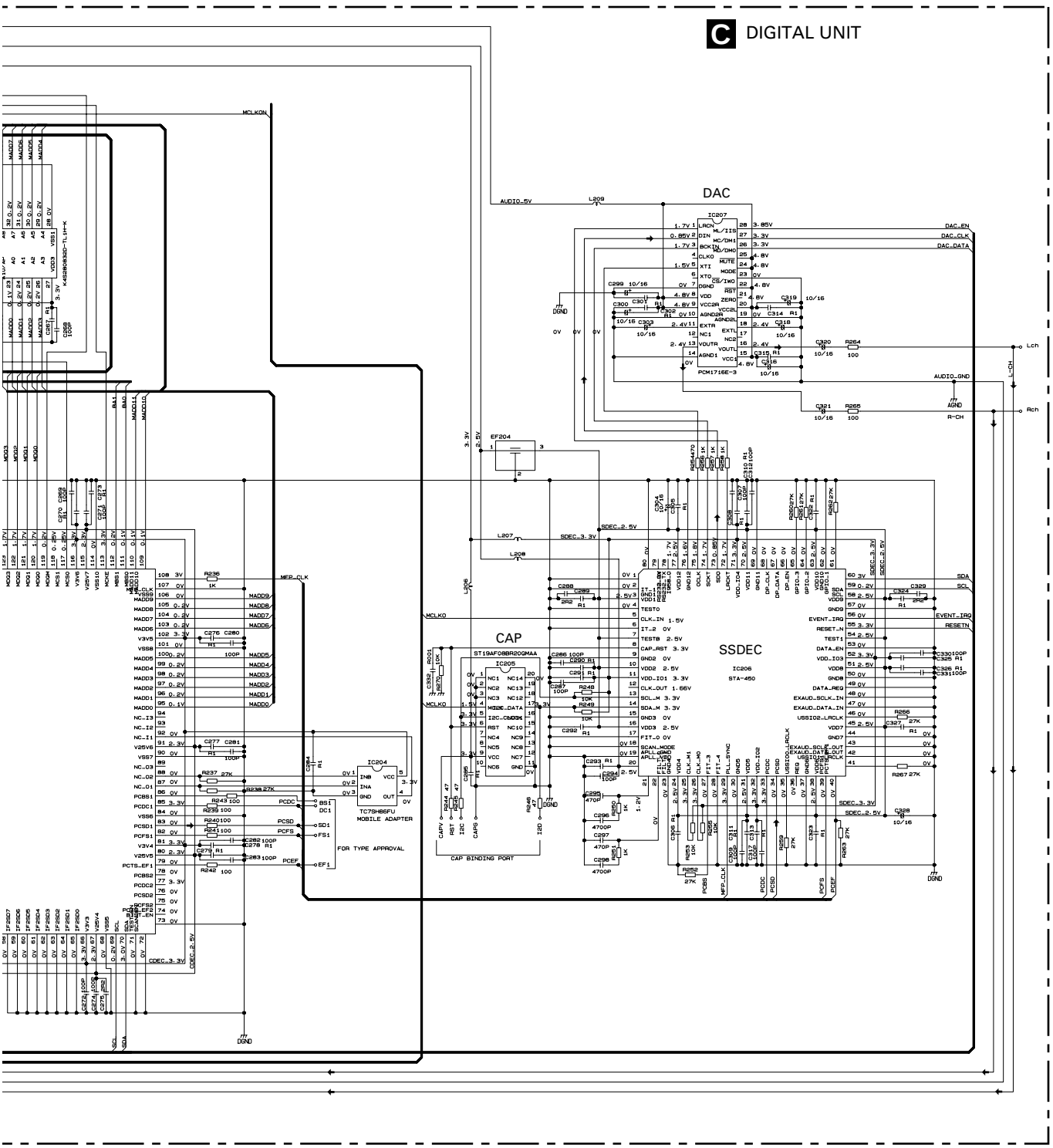

1st IF(SAT):113.505MHz
2nd IF(SAT)::6.095MHz
2.5GHz and IF PLL
2nd Lo:119.600MHz
Common Mode Filter
CTF1539
F3
F5
IC14
RF2325
IC18
AD61009ARS
IC12
RF2326
IC13
SI4136XM-BT
IC16
TC7W14FK
EF1
EF4
EF5
EF6
EF7
EF8
EF9
A CN501
CN2
SAT_IF2
SAT_AGC
TER_IF2
TER_AGC
D_GND
CLK
DATA
LE
LOCK_DET
SYS_CLK
RF_AGC
CTL
PRUP
ICTL
VS_ANT
VT_ANT
D_GND
VCC
VCC-2
GND

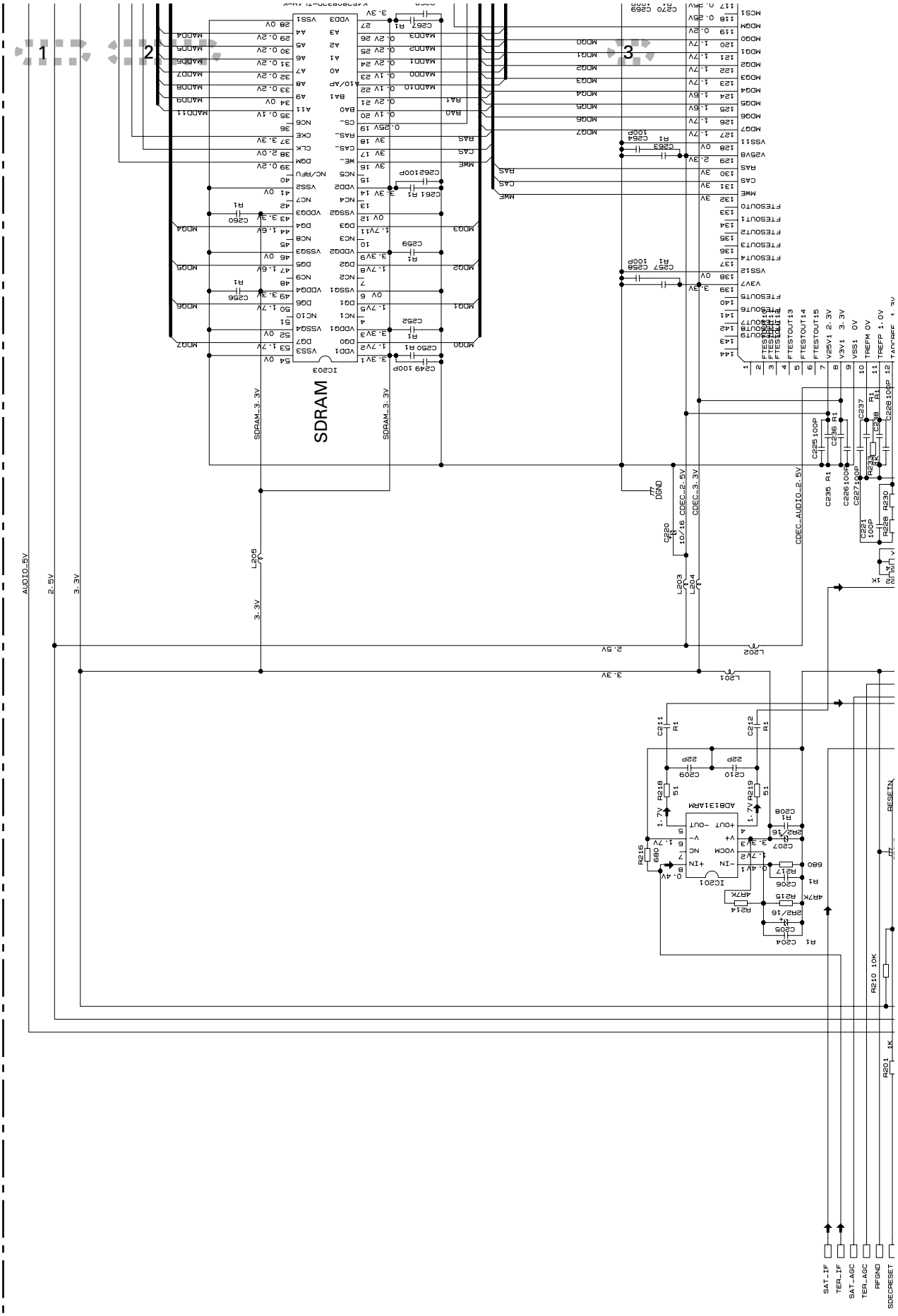
## 3.4 DIGITAL UNIT(GUIDE PAGE)

**C-a**

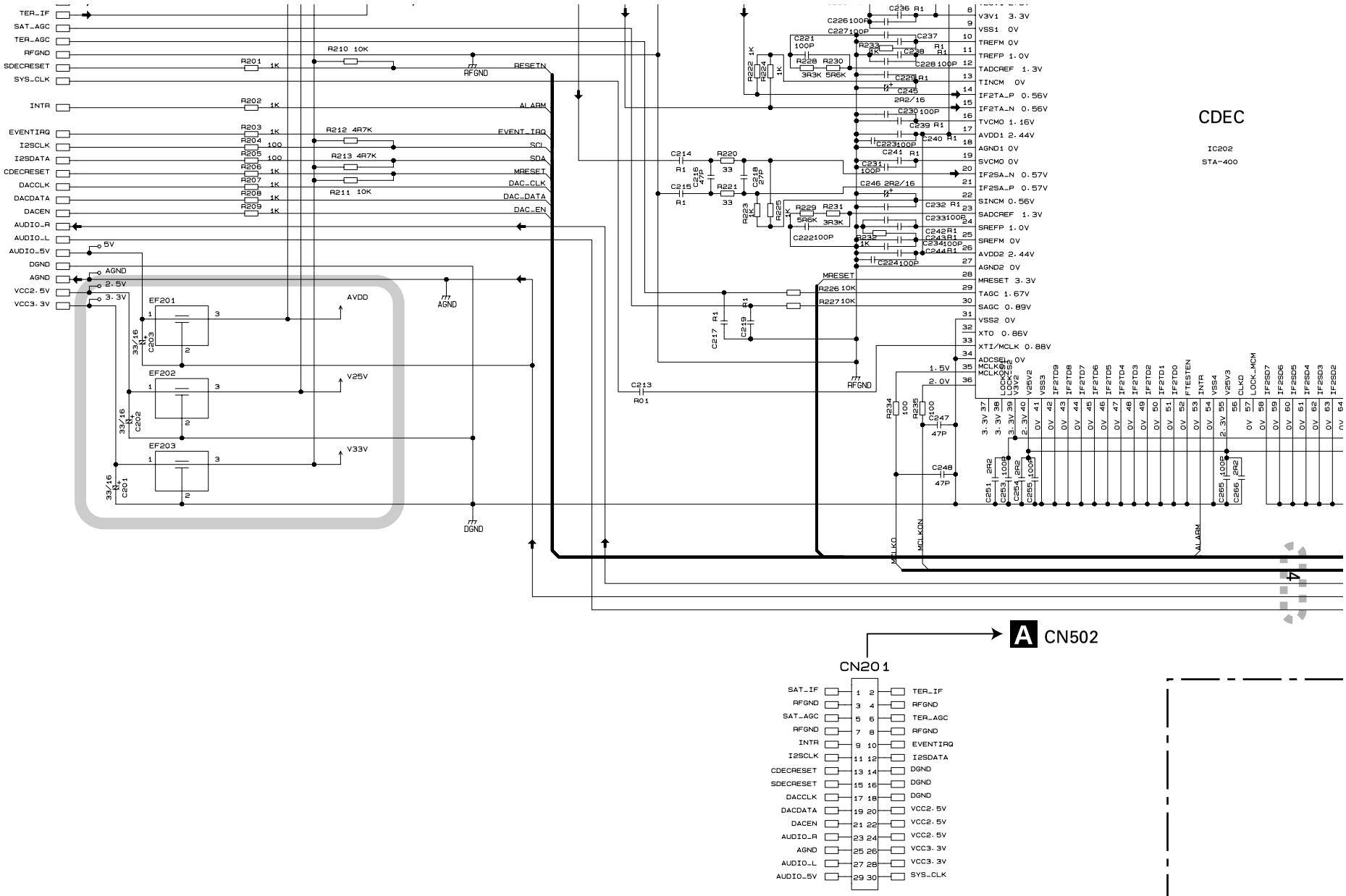


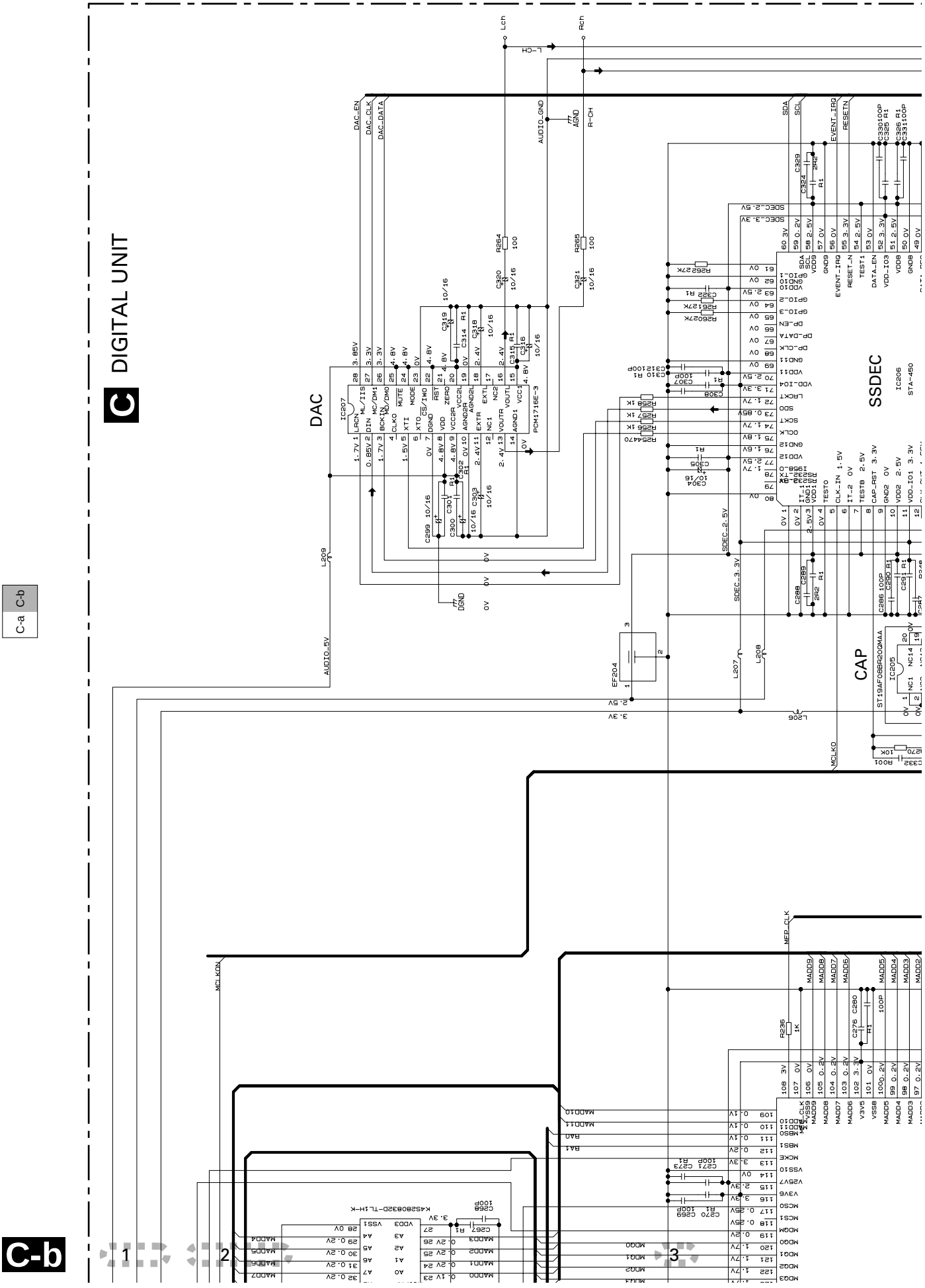
C DIGITAL UNIT

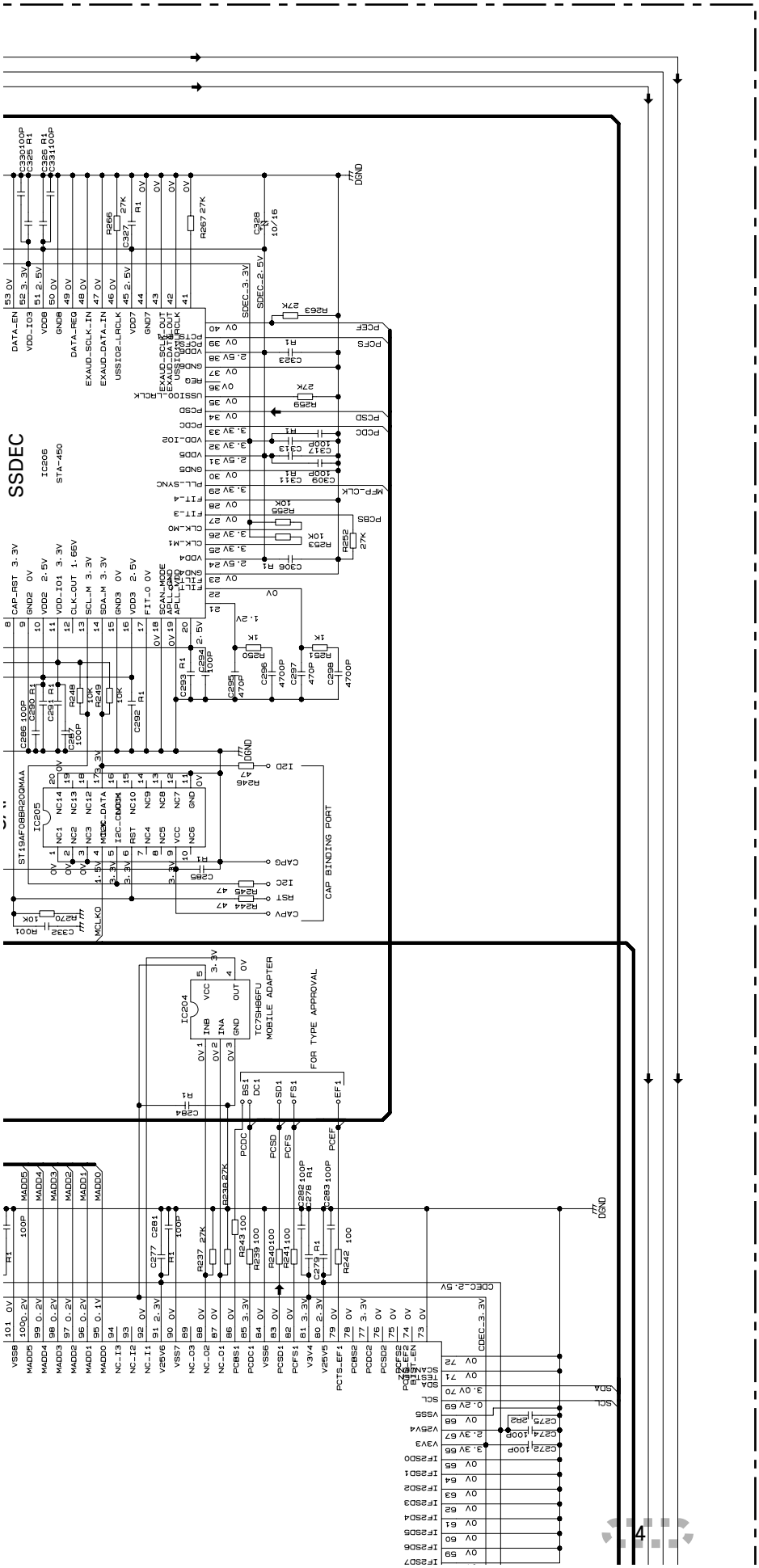



SDRAM
IC203
IC204
IC301
ADB1314ARM
AUDIO_5V
2.5V
3.3V
SDRAM_3.3V
CDEC_2.5V
CDEC_3.3V
CDEC_AUDIO_2.5V
DGND
SAT_IF
TER_IF
SAT_AGC
TER_AGC
RFGND
SDECRESET
RESETN
R210 10K
R201 1K

C-a C-b


CDEC
IC202
STA-400
CN201
A CN502
C-a
C-b
C-a C-b


C DIGITAL UNIT
DAC
SSDEC
CAP
C-a C-b
C-b
1
2
3


SSDEC
IC206
STA-450
IC205
ST19AF08BR20QMAA
IC204
TC7SH86FU
MOBILE ADAPTER
FOR TYPE APPROVAL
CAP BINDING PORT
DGND
CDEC-2.5V
CDEC-3.3V
SDEC-3.3V
SDEC-2.5V
MCLKO
SDA
SCL

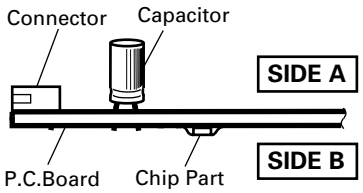
# 4. PCB CONNECTION DIAGRAM

## 4.1 MAIN UNIT

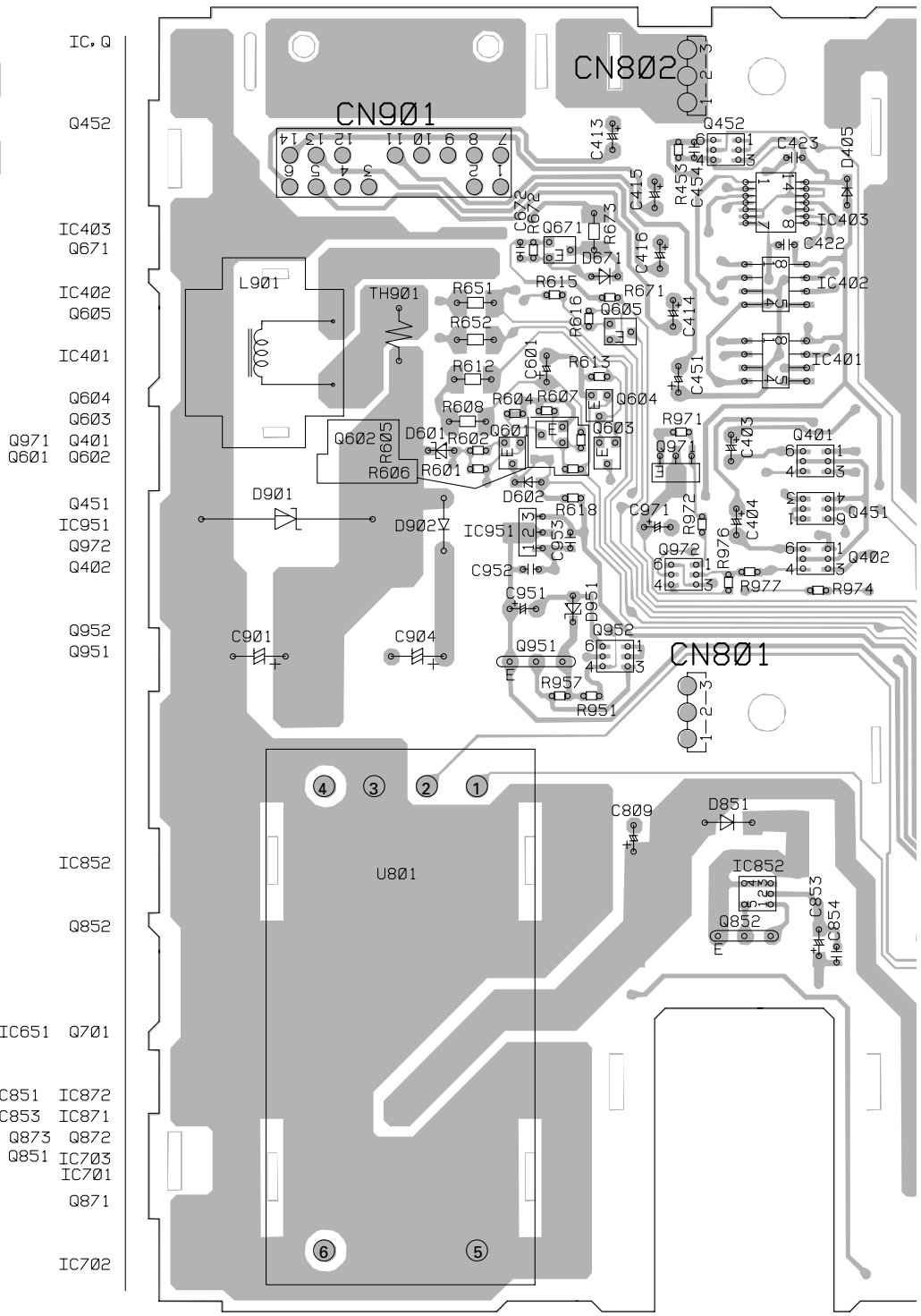
**NOTE FOR PCB DIAGRAMS**

1.The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.

2.Viewpoint of PCB diagrams

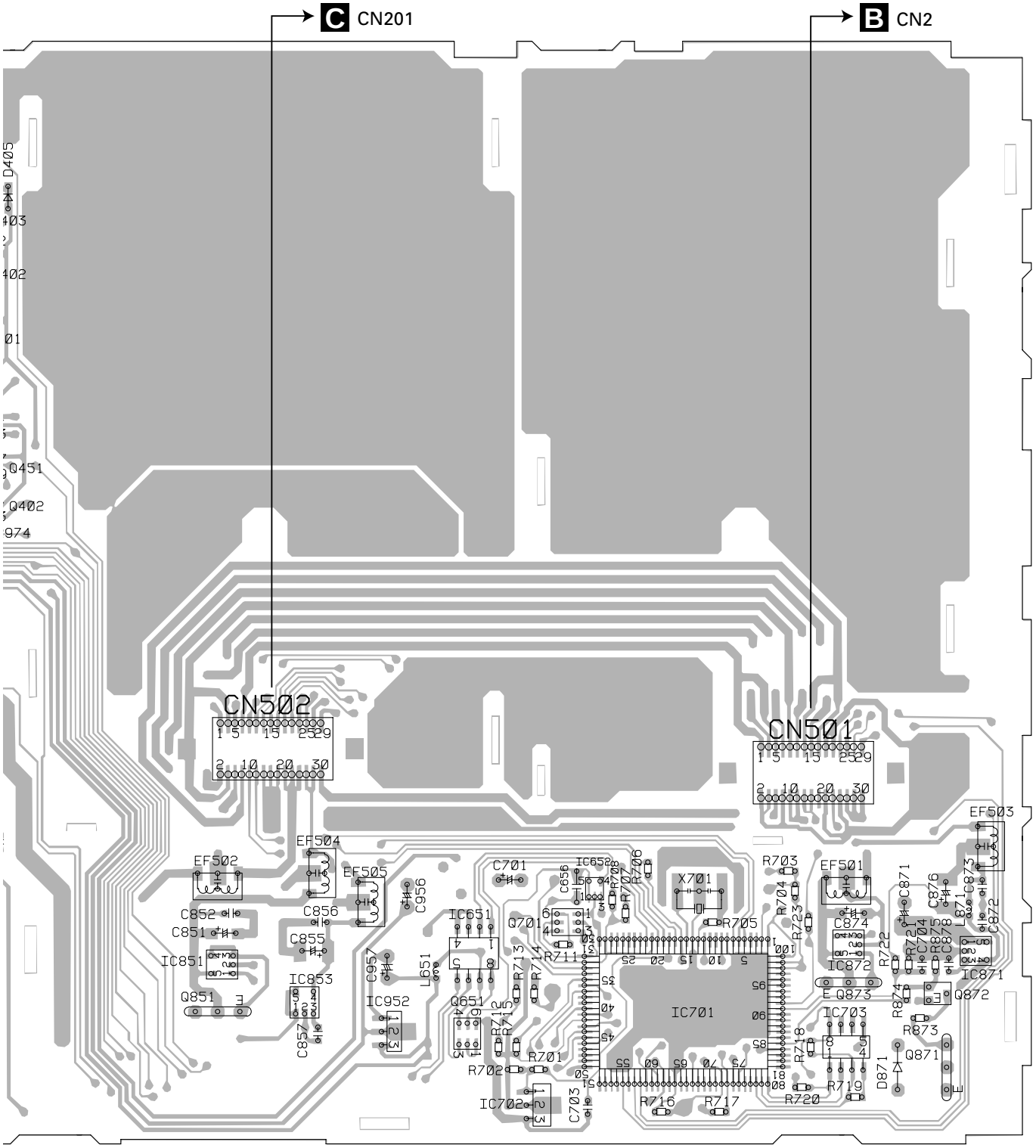



**A** MAIN UNIT




**A**

SIDE A


C CN201
B CN2
CN502
CN501
EF502
EF504
EF505
EF501
EF503
C701
IC651
Q701
IC701
IC703
IC702
IC872
IC871
IC851
IC853
IC952
Q851
Q651
Q873
Q872
Q871
X701
R703
R704
R705
R706
R707
R711
R712
R713
R714
R715
R716
R717
R718
R719
R720
R722
R723
R724
R725
R726
R727
R728
R729
R730
R731
R732
R733
R734
R735
R736
R737
R738
R739
R740
R741
R742
R743
R744
R745
R746
R747
R748
R749
R750
R751
R752
R753
R754
R755
R756
R757
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R761
R762
R763
R764
R765
R766
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R768
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R783
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R825
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R829
R830
R831
R832
R833
R834
R835
R836
R837
R838
R839
R840
R841
R842
R843
R844
R845
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R847
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R849
R850
R851
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R860
R861
R862
R863
R864
R865
R866
R867
R868
R869
R870
R871
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R873
R874
R875
R876
R877
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R903
R904
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R913
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R915
R916
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R918
R919
R920
R921
R922
R923
R924
R925
R926
R927
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R940
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R943
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R945
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R962
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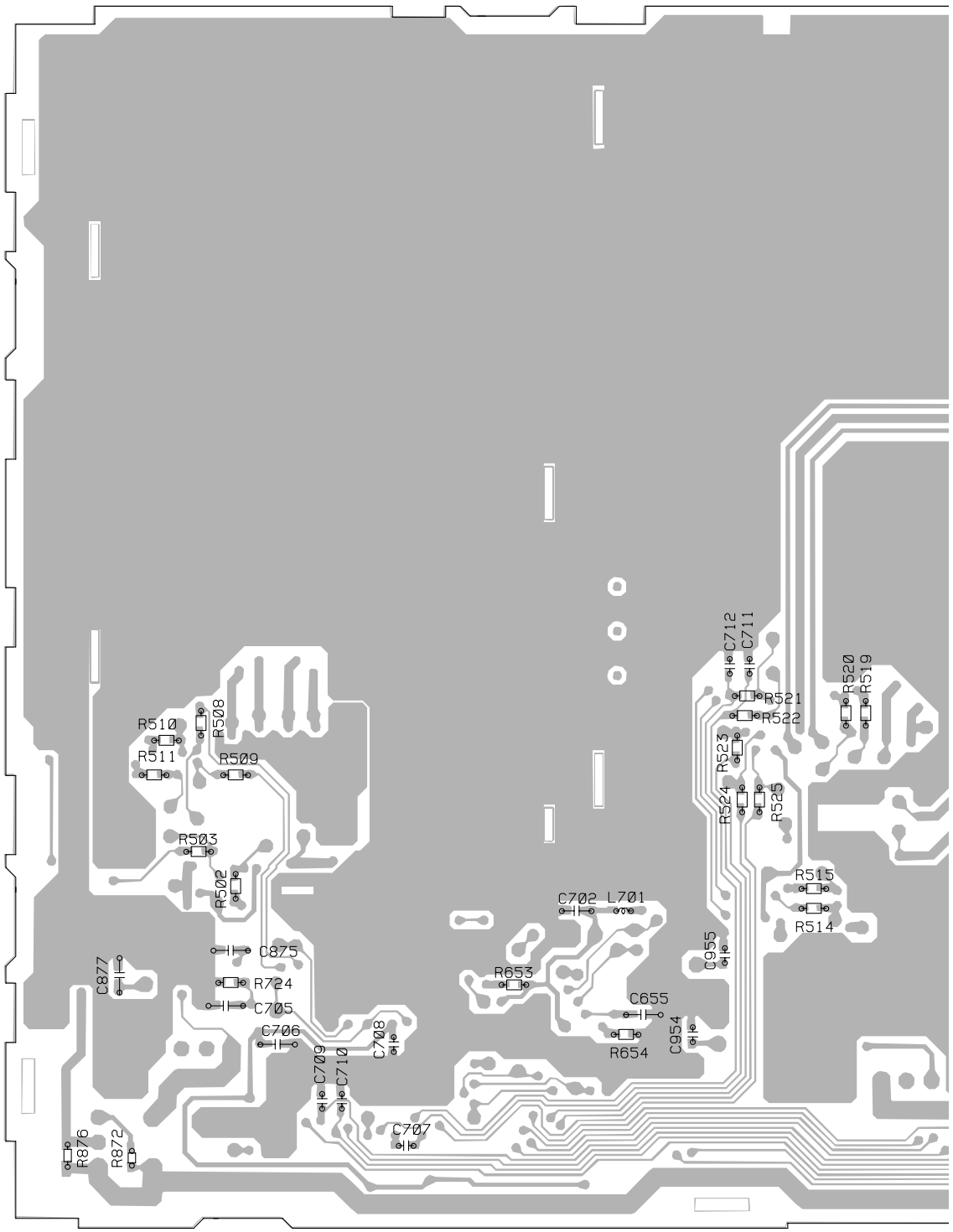
R964
R965
R966
R967
R968
R969
R970
R971
R972
R973
R974
C851
C852
C855
C856
C857
C872
C873
C874
C875
C876
C877
C878
C879
C880
C881
C882
C883
C884
C885
C886
C887
C888
C889
C890
C891
C892
C893
C894
C895
C896
C897
C898
C899
C900
C901
C902
C903
C904
C905
C906
C907
C908
C909
C910
C911

A

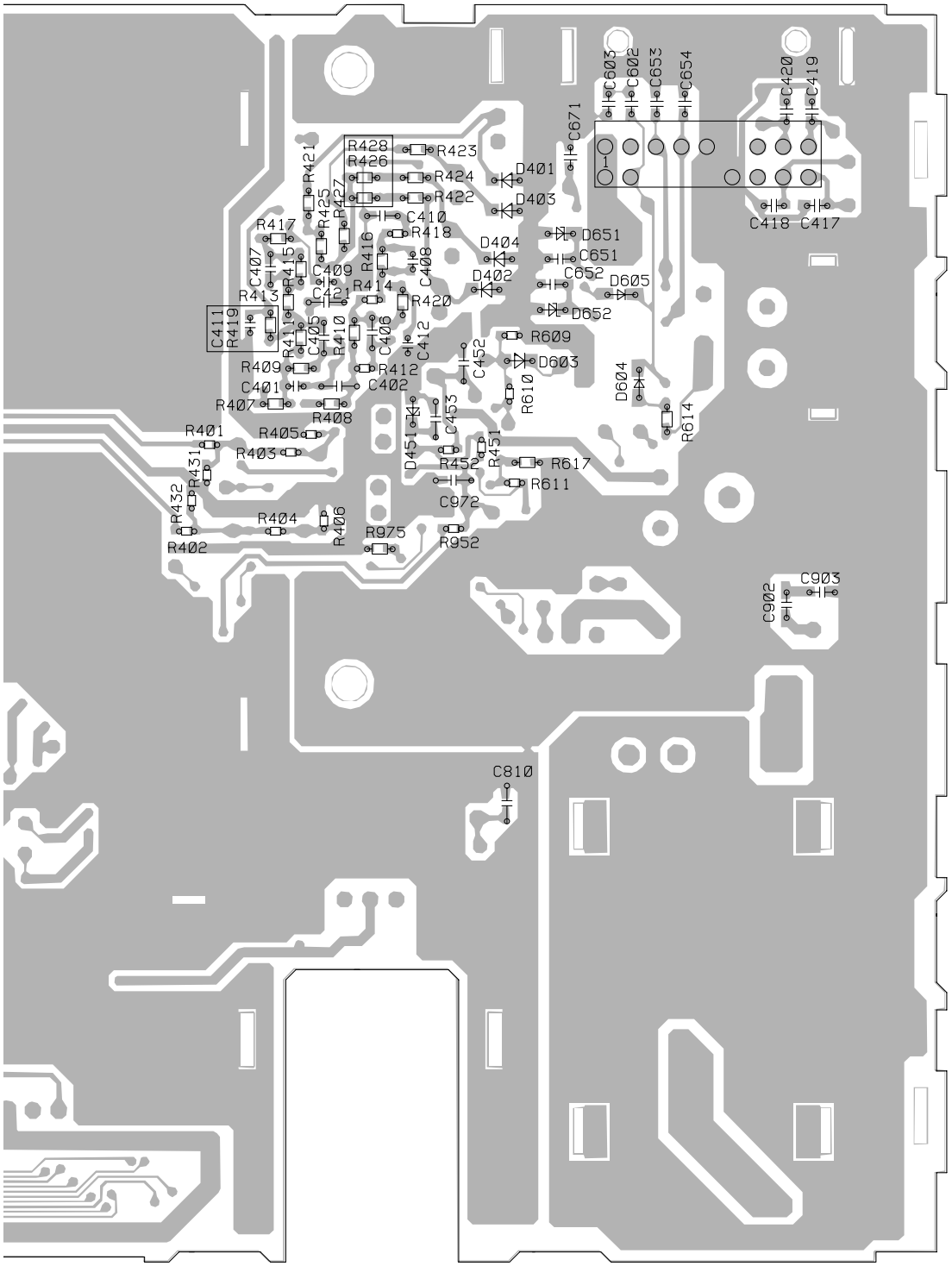
## A MAIN UNIT




F

A

**SIDE B**

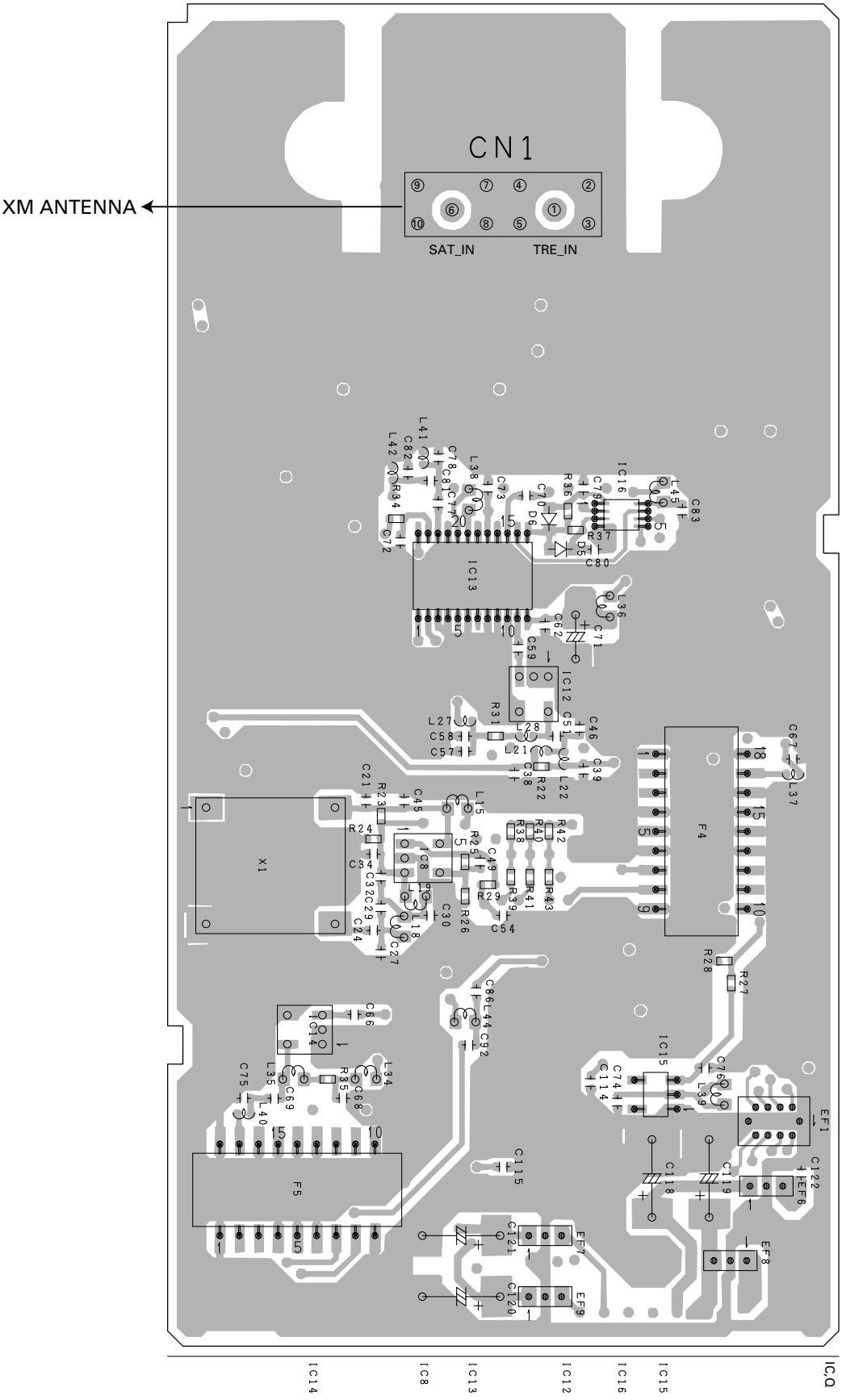

C603
C602
C653
C654
C420
C419
C671
R428
R426
R423
R424
R422
D401
D403
C410
R418
D404
D651
C651
C652
D605
D652
D402
R420
R414
R421
R417
R415
C407
C409
C421
R416
C408
R413
C411
R419
R411
C405
R410
C406
C412
R609
D603
C452
R610
R409
R412
C402
C401
R407
R408
C453
D451
R451
R452
R617
R611
C972
R401
R405
R403
R431
R432
R404
R406
R402
R975
R952
D604
R614
C418
C417
C903
C902
C810

A

## 4.2 RF UNIT

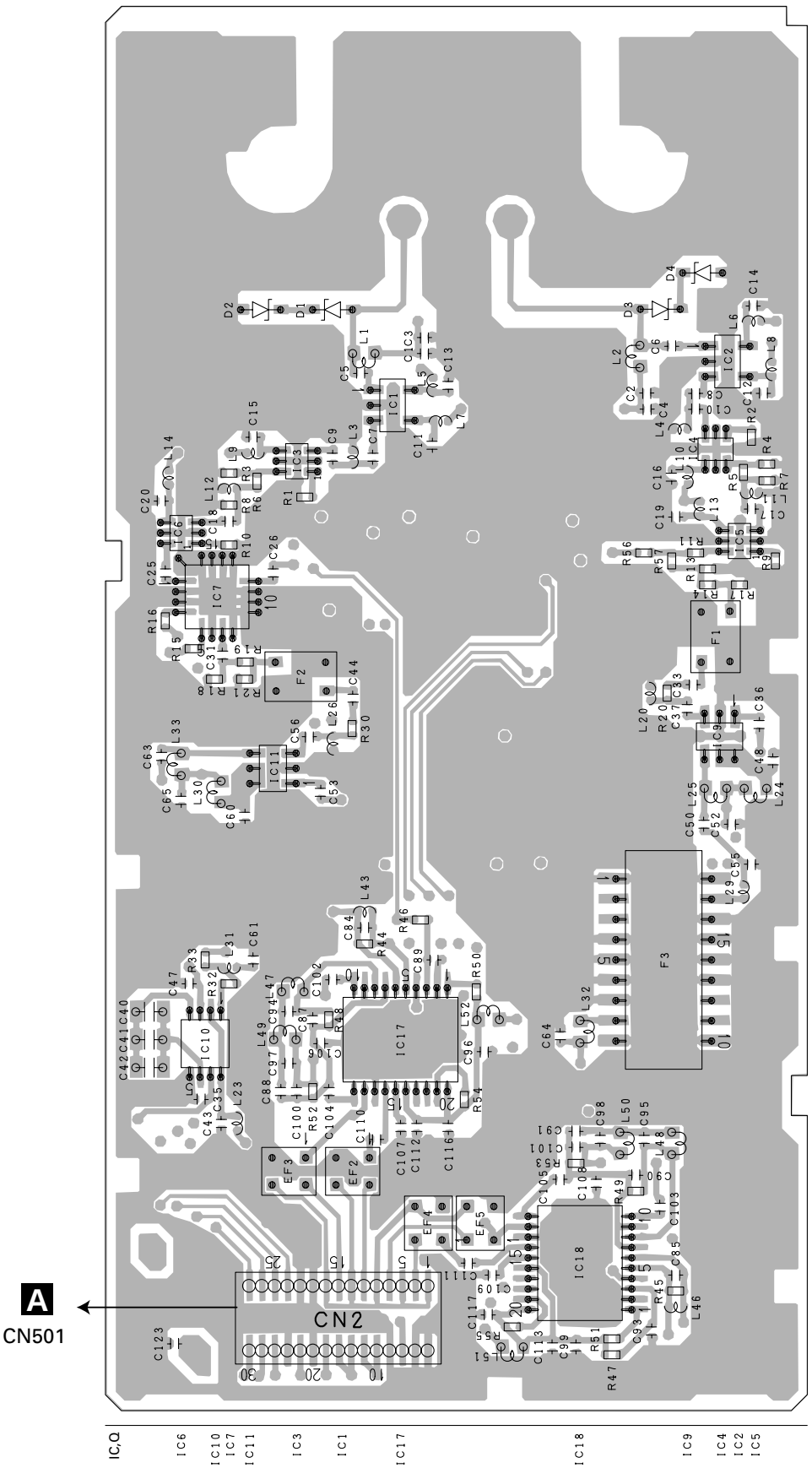
**B** RF UNIT

**SIDE A**



**B** RF UNIT

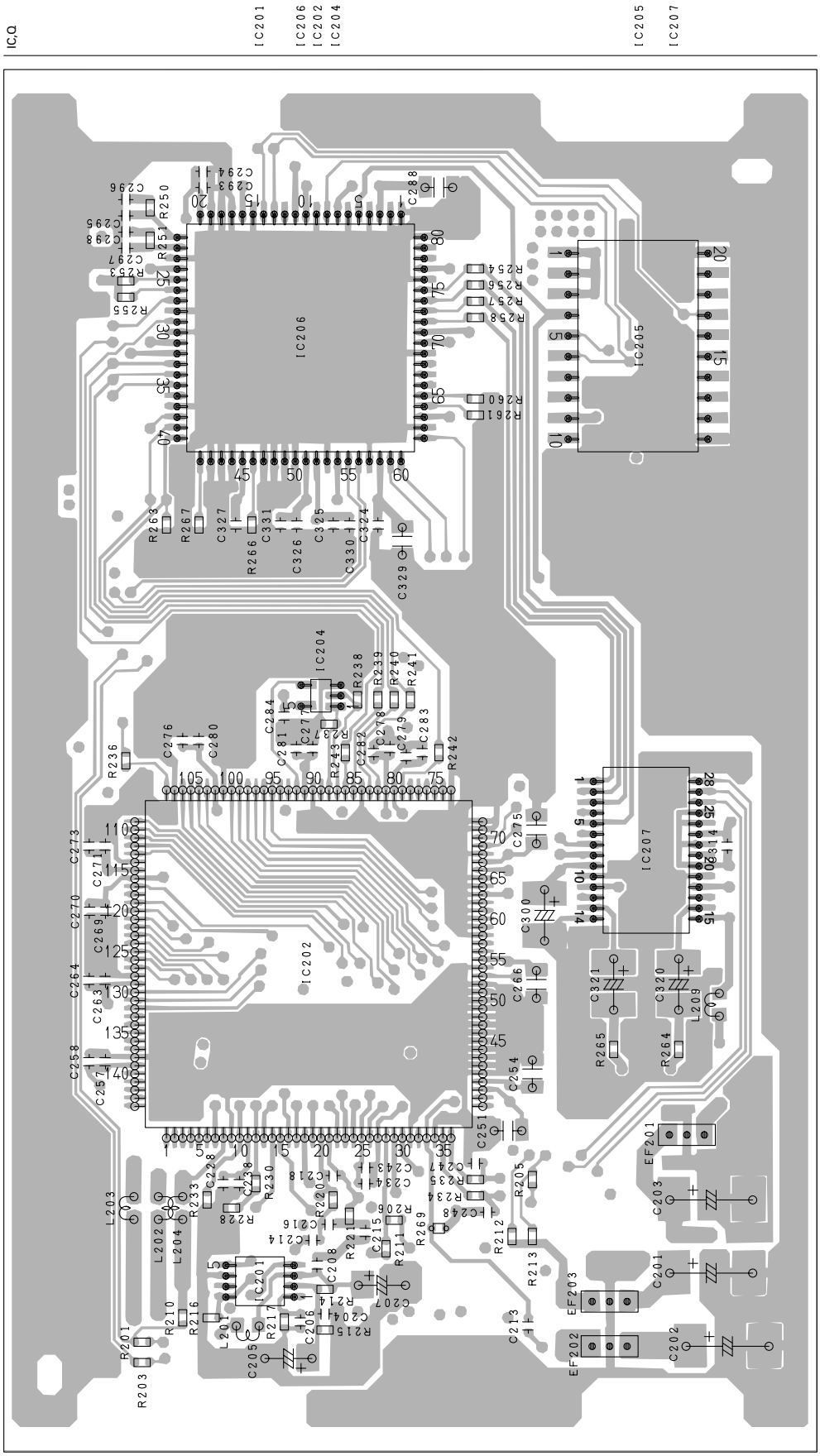
**SIDE B**



## 4.3 DIGITAL UNIT

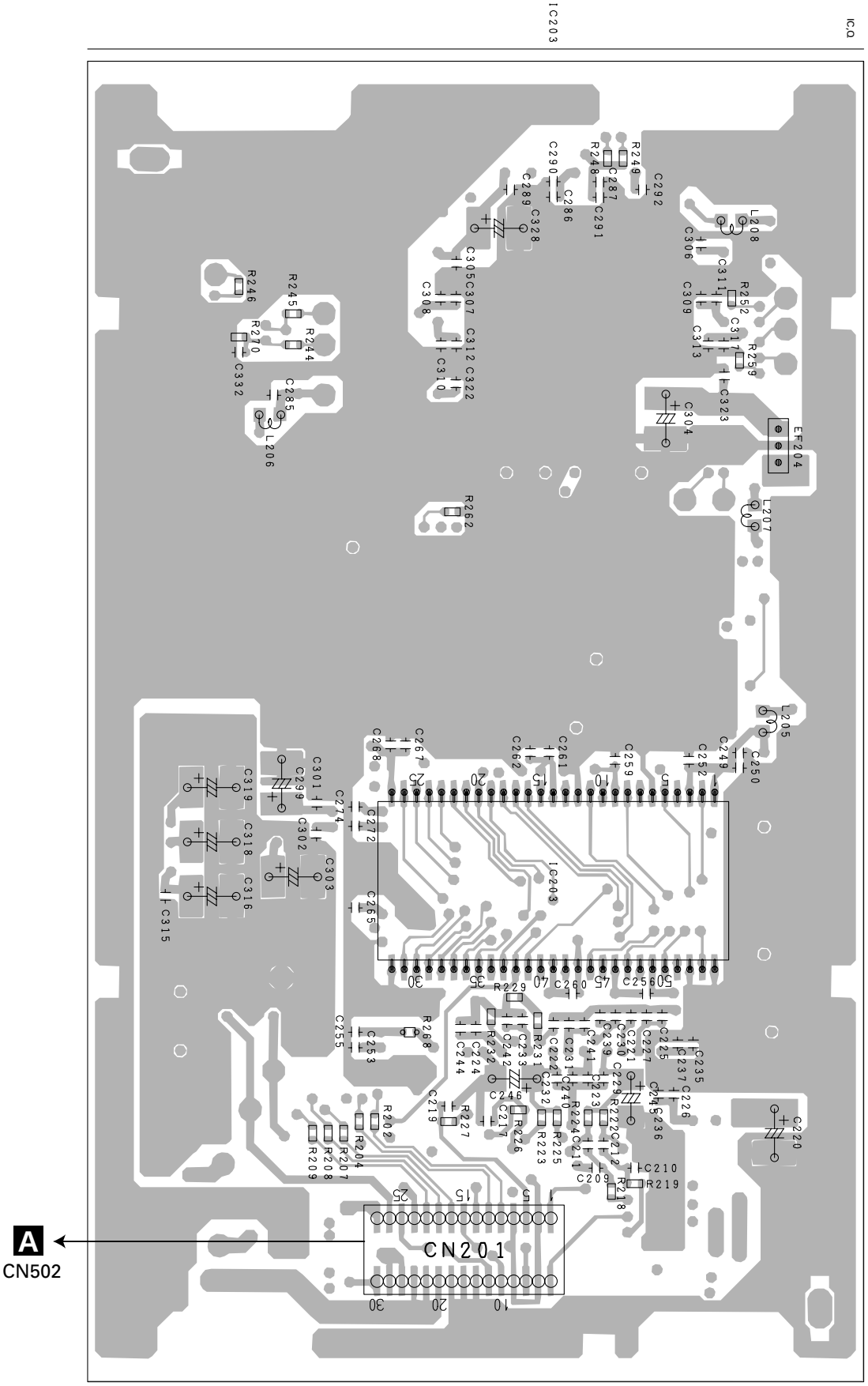
C DIGITAL UNIT

SIDE A



## C DIGITAL UNIT

**SIDE B**



# 5. ELECTRICAL PARTS LIST

**NOTES:**

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

**B** Unit Number : CWE1683
Unit Name : RF Unit

MISCELLANEOUS

| =====Circuit Symbol and No. | | ===Part Name | Part No. |
|---|---|---|---|
| IC | 1 | IC | AT-119 |
| IC | 2 | IC | AT-119 |
| IC | 3 | IC | MAX2644EXT |
| IC | 4 | IC | MAX2644EXT |
| IC | 5 | IC | MAX2644EXT |
| IC | 6 | IC | MAX2644EXT |
| IC | 7 | IC | SW-475 |
| IC | 8 | IC | AD8061ART |
| IC | 9 | IC | MAX2682EUT |
| IC | 10 | IC | AD8314ARM |
| IC | 11 | IC | MAX2682EUT |
| IC | 12 | IC | RF2326 |
| IC | 13 | IC | SI4136XM-BT |
| IC | 14 | IC | RF2325 |
| IC | 15 | IC | S-812C25AMC-C2F |
| IC | 16 | IC | TC7W14FK |
| IC | 17 | IC | AD61009ARS |
| IC | 18 | IC | AD61009ARS |
| D | 1 | Diode | HZU5R6(B3) |
| D | 2 | Diode | HZU5R6(B3) |
| D | 3 | Diode | HZU5R6(B3) |
| D | 4 | Diode | HZU5R6(B3) |
| D | 5 | Diode | 1SS387 |
| D | 6 | Diode | 1SS387 |
| L | 1 | Inductor | LCYB22NJ1608 |
| L | 2 | Inductor | LCYB22NJ1608 |
| L | 3 | Inductor | LCYB3N3S1005 |
| L | 4 | Inductor | LCYB3N3S1005 |
| L | 5 | Inductor | LCYB22NJ1005 |
| L | 6 | Inductor | LCYB22NJ1005 |
| L | 7 | Inductor | LCYB22NJ1005 |
| L | 8 | Inductor | LCYB22NJ1005 |
| L | 9 | Inductor | LCYB22NJ1005 |
| L | 10 | Inductor | LCYB22NJ1005 |
| L | 11 | Inductor | LCYB3N3S1005 |
| L | 12 | Inductor | LCYB3N3S1005 |
| L | 13 | Inductor | LCYB22NJ1005 |
| L | 14 | Inductor | LCYB22NJ1005 |
| L | 15 | Inductor | CTF1346 |
| L | 18 | Inductor | LCTC2R2K1608 |
| L | 19 | Inductor | LCTC1R8K1608 |
| L | 20 | Inductor | LCYB1N2S1005 |
| L | 21 | Inductor | LCYB3N9S1005 |
| L | 22 | Inductor | LCYB3N9S1005 |
| L | 23 | Inductor | LCYB22NJ1005 |
| L | 24 | Inductor | LCYB22NJ1608 |
| L | 25 | Inductor | LCYBR18J1608 |
| L | 26 | Inductor | LCYB2N2S1005 |
| L | 27 | Inductor | LCYB22NJ1005 |
| L | 28 | Inductor | LCYB82NJ1005 |
| L | 29 | Inductor | LCYBR12J1005 |
| L | 30 | Inductor | LCYB22NJ1608 |
| L | 31 | Inductor | LCYB82NJ1005 |
| L | 32 | Inductor | LCYBR18J1608 |
| L | 33 | Inductor | LCYBR18J1608 |
| L | 34 | Inductor | CTF1346 |
| L | 35 | Inductor | LCYBR22J1608 |
| L | 36 | Inductor | LCTC1R0K1608 |
| L | 37 | Inductor | LCYBR10J1005 |
| L | 38 | Inductor | LCYB2N2S1608 |
| L | 39 | Inductor | CTF1346 |
| L | 40 | Inductor | LCYBR12J1005 |
| L | 41 | Inductor | LCYB68NJ1005 |
| L | 42 | Inductor | LCYB68NJ1005 |
| L | 43 | Inductor | LCYB82NJ1005 |
| L | 44 | Inductor | LCYBR22J1608 |
| L | 45 | Inductor | CTF1346 |
| L | 46 | Inductor | LCYB82NJ1005 |
| L | 47 | Inductor | LCTC120K1608 |
| L | 48 | Inductor | LCTC6R8K1608 |
| L | 49 | Inductor | LCTC100K1608 |
| L | 50 | Inductor | LCTC5R6K1608 |
| L | 51 | Inductor | CTF1346 |
| L | 52 | Inductor | CTF1346 |
| X | 1 | TCXO | CWX2573 |
| F | 4 | Filter | CTF1540 |
| F | 5 | Filter | CTF1539 |
| F | 1 | Filter | CTF1538 |
| F | 2 | Filter | CTF1538 |
| F | 3 | Filter | CTF1539 |
| EF | 1 | EMI Filter | CCG1145 |
| EF | 2 | EMI Filter | CCG1147 |
| EF | 3 | EMI Filter | CCG1147 |
| EF | 4 | EMI Filter | CCG1147 |
| EF | 5 | EMI Filter | CCG1147 |
| EF | 6 | EMI Filter | CCG1142 |
| EF | 7 | EMI Filter | CCG1142 |
| EF | 8 | EMI Filter | CCG1142 |
| EF | 9 | EMI Filter | CCG1142 |

RESISTORS

| | | | |
|---|---|---|---|
| R | 1 | | RS1/16SS122J |
| R | 2 | | RS1/16SS122J |
| R | 3 | | RS1/16SS431J |
| R | 5 | | RS1/16SS0R0J |
| R | 6 | | RS1/16SS120J |

| =====Circuit Symbol and No. | | ===Part Name | Part No. |
|---|---|---|---|
| R | 8 | | RS1/16SS431J |
| R | 9 | | RS1/16SS122J |
| R | 10 | | RS1/16SS122J |
| R | 11 | | RS1/16SS180J |
| R | 13 | | RS1/16SS301J |
| R | 14 | | RS1/16SS180J |
| R | 15 | | RS1/16SS102J |
| R | 16 | | RS1/16SS102J |
| R | 17 | | RS1/16SS301J |
| R | 19 | | RS1/16SS0R0J |
| R | 20 | | RS1/16SS0R0J |
| R | 22 | | RS1/16SS101J |
| R | 23 | | RS1/16SS273J |
| R | 24 | | RS1/16SS103J |
| R | 25 | | RS1/16SS821J |
| R | 26 | | RS1/16SS102J |
| R | 27 | | RS1/16SS9100F |
| R | 28 | | RS1/16SS2400F |
| R | 29 | | RS1/16SS100J |
| R | 30 | | RS1/16SS0R0J |
| R | 31 | | RS1/16SS330J |
| R | 32 | | RS1/16SS121J |
| R | 33 | | RS1/16SS121J |
| R | 34 | | RS1/16SS330J |
| R | 35 | | RS1/16SS390J |
| R | 36 | | RS1/16SS273J |
| R | 37 | | RS1/16SS153J |
| R | 38 | | RS1/16SS473J |
| R | 39 | | RS1/16SS102J |
| R | 40 | | RS1/16SS473J |
| R | 41 | | RS1/16SS102J |
| R | 42 | | RS1/16SS473J |
| R | 43 | | RS1/16SS102J |
| R | 44 | | RS1/16SS221J |
| R | 45 | | RS1/16SS471J |
| R | 46 | | RS1/16SS472J |
| R | 47 | | RS1/16SS0R0J |
| R | 48 | | RS1/16SS331J |
| R | 49 | | RS1/16SS331J |
| R | 50 | | RS1/16SS103J |
| R | 51 | | RS1/16SS103J |
| R | 52 | | RS1/16SS331J |
| R | 53 | | RS1/16SS331J |
| R | 54 | | RS1/16SS103J |
| R | 55 | | RS1/16SS103J |
| R | 56 | | RS1/16SS180J |
| R | 57 | | RS1/16SS180J |

## CAPACITORS

| =====Circuit Symbol and No. | | ===Part Name | Part No. |
|---|---|---|---|
| C | 1 | | CKSSYB102K50 |
| C | 2 | | CKSSYB102K50 |
| C | 3 | | CCSSCH220J50 |
| C | 4 | | CCSSCH220J50 |
| C | 5 | | CCSSCH150J50 |
| C | 6 | | CCSSCH220J50 |
| C | 7 | | CCSSCH150J50 |
| C | 8 | | CCSSCH150J50 |
| C | 9 | | CCSSCH220J50 |
| C | 10 | | CCSSCH220J50 |
| C | 11 | | CCSSCH150J50 |
| C | 12 | | CCSSCH150J50 |
| C | 13 | | CCSSCH150J50 |
| C | 14 | | CCSSCH150J50 |
| C | 15 | | CCSSCH150J50 |
| C | 16 | | CCSSCH150J50 |
| C | 17 | | CCSSCH220J50 |
| C | 18 | | CCSSCH220J50 |
| C | 19 | | CCSSCH150J50 |
| C | 20 | | CCSSCH150J50 |
| C | 21 | | CKSSYB103K16 |
| C | 24 | | CKSSYB102K50 |
| C | 25 | | CCSSCH470J50 |
| C | 26 | | CCSSCH470J50 |
| C | 27 | | CCSSCH7R0D50 |
| C | 29 | | CCSSCK1R0C50 |
| C | 30 | | CCSSCH120J50 |
| C | 31 | | CCSSCH470J50 |
| C | 32 | | CCSSCJ3R0C50 |
| C | 33 | | CCSSCH150J50 |
| C | 34 | | CCSSCH5R0C50 |
| C | 35 | | CKSSYB103K16 |
| C | 36 | | CCSSCH271J25 |
| C | 37 | | CCSSCH271J25 |
| C | 38 | 0.5pF | CCG1112 |
| C | 39 | 0.5pF | CCG1112 |
| C | 40 | | CKSQYB225K10 |
| C | 41 | | CKSQYB225K10 |
| C | 42 | | CKSQYB225K10 |
| C | 43 | | CCSSCH150J50 |
| C | 44 | | CCSSCH150J50 |
| C | 45 | | CKSSYB104K10 |
| C | 46 | 1.0pF | CCG1114 |
| C | 47 | | CKSSYB103K16 |
| C | 48 | | CCSSCH150J50 |
| C | 49 | | CCSSCJ3R0C50 |
| C | 50 | | CCSSCH9R0D50 |
| C | 51 | | CCSSCH101J50 |
| C | 52 | | CKSSYB103K16 |
| C | 53 | | CCSSCH271J25 |
| C | 54 | | CCSSCH221J50 |
| C | 55 | | CCSSCH330J50 |
| C | 56 | | CCSSCH271J25 |
| C | 57 | | CKSSYB103K16 |
| C | 58 | | CCSSCH101J50 |
| C | 59 | | CKSSYB561K50 |
| C | 60 | | CCSSCH150J50 |
| C | 61 | | CCSSCH120J50 |
| C | 62 | | CKSSYB223K16 |
| C | 63 | | CCSSCH9R0D50 |
| C | 64 | | CCSSCH100D50 |
| C | 65 | | CKSSYB103K16 |
| C | 66 | | CKSSYB102K50 |
| C | 67 | | CCSSCH330J50 |
| C | 68 | | CKSSYB102K50 |
| C | 69 | | CKSSYB102K50 |
| C | 70 | | CKSSYB102K50 |
| C | 71 | | CSZS100M10 |
| C | 72 | | CKSSYB223K16 |
| C | 73 | | CKSSYB223K16 |
| C | 74 | | CKSSYB104K10 |
| C | 75 | | CCSSCH330J50 |
| C | 76 | | CKSSYB104K10 |
| C | 77 | | CKSSYB102K50 |
| C | 78 | | CCSSCH220J50 |
| C | 79 | | CKSSYB103K16 |
| C | 80 | | CKSSYB103K16 |
| C | 81 | | CCSSCH6R0D50 |
| C | 82 | | CCSSCH220J50 |
| C | 83 | | CKSSYB103K16 |
| C | 84 | | CCSSCH150J50 |
| C | 85 | | CCSSCH180J50 |
| C | 86 | | CKSSYB102K50 |
| C | 87 | | CCSSCH101J50 |
| C | 88 | | CCSSCH181J25 |
| C | 89 | | CKSSYB103K16 |
| C | 90 | | CCSSCH560J50 |
| C | 91 | | CCSSCH101J50 |
| C | 92 | | CKSSYB102K50 |
| C | 94 | | CCSSCH150J50 |

| =====Circuit Symbol and No. | === | Part Name | Part No. |
|---|---|---|---|
| C | 95 | | CCSSCH6R0D50 |
| C | 96 | | CKSSYB103K16 |
| C | 97 | | CCSSCH390J50 |
| C | 98 | | CCSSCH150J50 |
| C | 99 | | CKSSYB103K16 |
| C | 100 | | CCSSCH101J50 |
| C | 101 | | CCSSCH470J50 |
| C | 102 | | CKSSYB102K50 |
| C | 103 | | CKSSYB102K50 |
| C | 104 | | CKSSYB104K10 |
| C | 105 | | CKSSYB104K10 |
| C | 106 | | CKSSYB104K10 |
| C | 107 | | CKSSYB103K16 |
| C | 108 | | CKSSYB104K10 |
| C | 109 | | CKSSYB103K16 |
| C | 110 | | CKSSYB103K16 |
| C | 111 | | CKSSYB103K16 |
| C | 112 | | CKSSYB103K16 |
| C | 113 | | CKSSYB103K16 |
| C | 114 | | CKSSYB102K50 |
| C | 115 | | CKSSYB102K50 |
| C | 116 | | CKSSYB103K16 |
| C | 117 | | CKSSYB103K16 |
| C | 118 | | CSZSC330M16 |
| C | 119 | | CSZSC330M16 |
| C | 120 | | CSZSC330M16 |
| C | 121 | | CSZSC330M16 |
| C | 122 | | CKSSYB104K10 |
| C | 123 | | CKSSYB104K10 |

## C Unit Number : CWX2749
## Unit Name : Digital Unit

### MISCELLANEOUS

| | | | |
|---|---|---|---|
| IC | 201 | IC | AD8131ARM |
| IC | 202 | IC | STA-400 |
| IC | 203 | IC | K4S280832D-TL1H |
| IC | 204 | IC | TC7SH86FU |
| IC | 205 | IC | ST19AF08BR20QMAA |
| IC | 206 | IC | STA-450 |
| IC | 207 | IC | PCM1716E-3 |
| L | 201 | Inductor | CTF1473 |
| L | 202 | Inductor | CTF1473 |
| L | 203 | Inductor | CTF1464 |
| L | 204 | Inductor | CTF1473 |
| L | 205 | Inductor | CTF1464 |
| L | 206 | Inductor | CTF1473 |
| L | 207 | Inductor | CTF1473 |
| L | 208 | Inductor | CTF1473 |
| L | 209 | Inductor | CTF1473 |
| EF | 201 | EMI Filter | CCG1142 |
| EF | 202 | EMI Filter | CCG1142 |
| EF | 203 | EMI Filter | CCG1142 |
| EF | 204 | EMI Filter | CCG1142 |

### RESISTORS

| | | | |
|---|---|---|---|
| R | 201 | | RS1/16SS102J |
| R | 202 | | RS1/16SS102J |
| R | 203 | | RS1/16SS102J |
| R | 204 | | RS1/16SS101J |
| R | 205 | | RS1/16SS101J |
| R | 206 | | RS1/16SS102J |
| R | 207 | | RS1/16SS102J |
| R | 208 | | RS1/16SS102J |
| R | 209 | | RS1/16SS102J |
| R | 210 | | RS1/16SS103J |
| R | 211 | | RS1/16SS103J |
| R | 212 | | RS1/16SS472J |
| R | 213 | | RS1/16SS472J |
| R | 214 | | RS1/16SS472J |
| R | 215 | | RS1/16SS472J |
| R | 216 | | RS1/16SS681J |
| R | 217 | | RS1/16SS681J |
| R | 218 | | RS1/16SS510J |
| R | 219 | | RS1/16SS510J |
| R | 220 | | RS1/16SS330J |
| R | 221 | | RS1/16SS330J |
| R | 222 | | RS1/16SS102J |
| R | 223 | | RS1/16SS102J |
| R | 224 | | RS1/16SS102J |
| R | 225 | | RS1/16SS102J |
| R | 226 | | RS1/16SS103J |
| R | 227 | | RS1/16SS103J |
| R | 228 | | RS1/16SS332J |
| R | 229 | | RS1/16SS562J |
| R | 230 | | RS1/16SS562J |
| R | 231 | | RS1/16SS332J |
| R | 232 | | RS1/16SS102J |
| R | 233 | | RS1/16SS102J |
| R | 234 | | RS1/16SS101J |
| R | 235 | | RS1/16SS101J |
| R | 236 | | RS1/16SS102J |
| R | 237 | | RS1/16SS273J |
| R | 238 | | RS1/16SS273J |
| R | 239 | | RS1/16SS101J |
| R | 240 | | RS1/16SS101J |
| R | 241 | | RS1/16SS101J |
| R | 242 | | RS1/16SS101J |
| R | 243 | | RS1/16SS101J |
| R | 244 | | RS1/16SS470J |
| R | 245 | | RS1/16SS470J |
| R | 246 | | RS1/16SS470J |
| R | 248 | | RS1/16SS103J |
| R | 249 | | RS1/16SS103J |
| R | 250 | | RS1/16SS102J |
| R | 251 | | RS1/16SS102J |
| R | 252 | | RS1/16SS273J |
| R | 253 | | RS1/16SS103J |
| R | 254 | | RS1/16SS471J |
| R | 255 | | RS1/16SS103J |
| R | 256 | | RS1/16SS102J |
| R | 257 | | RS1/16SS102J |
| R | 258 | | RS1/16SS102J |
| R | 259 | | RS1/16SS273J |
| R | 260 | | RS1/16SS273J |
| R | 261 | | RS1/16SS273J |
| R | 262 | | RS1/16SS273J |
| R | 263 | | RS1/16SS273J |
| R | 264 | | RS1/16SS101J |
| R | 265 | | RS1/16SS101J |
| R | 266 | | RS1/16SS273J |
| R | 267 | | RS1/16SS273J |
| R | 270 | | RS1/16SS103J |

### CAPACITORS

| | | |
|---|---|---|
| C | 201 | CSZSC330M16 |
| C | 202 | CSZSC330M16 |
| C | 203 | CSZSC330M16 |
| C | 204 | CKSSYB104K10 |
| C | 205 | CSZS2R2M16 |
| C | 206 | CKSSYB104K10 |
| C | 207 | CSZS2R2M16 |
| C | 208 | CKSSYB104K10 |
| C | 209 | CCSSCH220J50 |
| C | 210 | CCSSCH220J50 |

| Circuit Symbol and No. | Part Name | Part No. |
|---|---|---|
| C 211 | | CKSSYB104K10 |
| C 212 | | CKSSYB104K10 |
| C 213 | | CKSSYB103K16 |
| C 214 | | CKSSYB104K10 |
| C 215 | | CKSSYB104K10 |
| C 216 | | CCSSCH470J50 |
| C 217 | | CKSSYB104K10 |
| C 218 | | CCSSCH270J50 |
| C 219 | | CKSSYB104K10 |
| C 220 | | CSZSR100M16 |
| C 221 | | CCSSCH101J50 |
| C 222 | | CCSSCH101J50 |
| C 223 | | CCSSCH101J50 |
| C 224 | | CCSSCH101J50 |
| C 225 | | CCSSCH101J50 |
| C 226 | | CCSSCH101J50 |
| C 227 | | CCSSCH101J50 |
| C 228 | | CCSSCH101J50 |
| C 229 | | CKSSYB104K10 |
| C 230 | | CCSSCH101J50 |
| C 231 | | CCSSCH101J50 |
| C 232 | | CKSSYB104K10 |
| C 233 | | CCSSCH101J50 |
| C 234 | | CCSSCH101J50 |
| C 235 | | CKSSYB104K10 |
| C 236 | | CKSSYB104K10 |
| C 237 | | CKSSYB104K10 |
| C 238 | | CKSSYB104K10 |
| C 239 | | CKSSYB104K10 |
| C 240 | | CKSSYB104K10 |
| C 241 | | CKSSYB104K10 |
| C 242 | | CKSSYB104K10 |
| C 243 | | CKSSYB104K10 |
| C 244 | | CKSSYB104K10 |
| C 245 | | CSZS2R2M16 |
| C 246 | | CSZS2R2M16 |
| C 247 | | CCSSCH470J50 |
| C 248 | | CCSSCH470J50 |
| C 249 | | CCSSCH101J50 |
| C 250 | | CKSSYB104K10 |
| C 251 | | CKSQYB225K10 |
| C 252 | | CKSSYB104K10 |
| C 253 | | CCSSCH101J50 |
| C 254 | | CKSQYB225K10 |
| C 255 | | CCSSCH101J50 |
| C 256 | | CKSSYB104K10 |
| C 257 | | CKSSYB104K10 |
| C 258 | | CCSSCH101J50 |
| C 259 | | CKSSYB104K10 |
| C 260 | | CKSSYB104K10 |
| C 261 | | CKSSYB104K10 |
| C 262 | | CCSSCH101J50 |
| C 263 | | CKSSYB104K10 |
| C 264 | | CCSSCH101J50 |
| C 265 | | CCSSCH101J50 |
| C 266 | | CKSQYB225K10 |
| C 267 | | CKSSYB104K10 |
| C 268 | | CCSSCH101J50 |
| C 269 | | CCSSCH101J50 |
| C 270 | | CKSSYB104K10 |
| C 271 | | CCSSCH101J50 |
| C 272 | | CCSSCH101J50 |
| C 273 | | CKSSYB104K10 |
| C 274 | | CCSSCH101J50 |
| C 275 | | CKSQYB225K10 |
| C 276 | | CKSSYB104K10 |
| C 277 | | CKSSYB104K10 |
| C 278 | | CKSSYB104K10 |
| C 279 | | CKSSYB104K10 |
| C 280 | | CCSSCH101J50 |

| Circuit Symbol and No. | Part Name | Part No. |
|---|---|---|
| C 281 | | CCSSCH101J50 |
| C 282 | | CCSSCH101J50 |
| C 283 | | CCSSCH101J50 |
| C 284 | | CKSSYB104K10 |
| C 285 | | CKSSYB104K10 |
| C 286 | | CCSSCH101J50 |
| C 287 | | CCSSCH101J50 |
| C 288 | | CKSQYB225K10 |
| C 289 | | CKSSYB104K10 |
| C 290 | | CKSSYB104K10 |
| C 291 | | CKSSYB104K10 |
| C 292 | | CKSSYB104K10 |
| C 293 | | CKSSYB104K10 |
| C 294 | | CCSSCH101J50 |
| C 295 | | CKSSYB471K50 |
| C 296 | | CKSSYB472K25 |
| C 297 | | CKSSYB471K50 |
| C 298 | | CKSSYB472K25 |
| C 299 | | CSZSR100M16 |
| C 300 | | CSZSR100M16 |
| C 301 | | CKSSYB104K10 |
| C 302 | | CKSSYB104K10 |
| C 303 | | CSZSR100M16 |
| C 304 | | CSZSR100M16 |
| C 305 | | CKSSYB104K10 |
| C 306 | | CKSSYB104K10 |
| C 307 | | CCSSCH101J50 |
| C 308 | | CKSSYB104K10 |
| C 309 | | CCSSCH101J50 |
| C 310 | | CKSSYB104K10 |
| C 311 | | CKSSYB104K10 |
| C 312 | | CCSSCH101J50 |
| C 313 | | CKSSYB104K10 |
| C 314 | | CKSSYB104K10 |
| C 315 | | CKSSYB104K10 |
| C 316 | | CSZSR100M16 |
| C 317 | | CCSSCH101J50 |
| C 318 | | CSZSR100M16 |
| C 319 | | CSZSR100M16 |
| C 320 | | CSZSR100M16 |
| C 321 | | CSZSR100M16 |
| C 322 | | CKSSYB104K10 |
| C 323 | | CKSSYB104K10 |
| C 324 | | CKSSYB104K10 |
| C 325 | | CKSSYB104K10 |
| C 326 | | CKSSYB104K10 |
| C 327 | | CKSSYB104K10 |
| C 328 | | CSZSR100M16 |
| C 329 | | CKSQYB225K10 |
| C 330 | | CCSSCH101J50 |
| C 331 | | CCSSCH101J50 |
| C 332 | | CKSSYB102K50 |

## A Unit Number : CWM8561
## Unit Name : Main Unit

### MISCELLANEOUS

| | | | |
|---|---|---|---|
| IC | 401 | IC | NJM4558MD |
| IC | 402 | IC | NJM4558MD |
| IC | 403 | IC | TC74HC4066AFT |
| IC | 651 | IC | HA12187FP |
| IC | 652 | IC | TC7SET08FU |
| IC | 701 | IC | PD5818A |
| IC | 702 | IC | S-80827ANUP-EDQ |
| IC | 851 | IC | S-816A33AMC-BAI |
| IC | 852 | IC | S-816A25AMC-BAA |
| IC | 853 | IC | NJM2870F05 |
| IC | 871 | IC | NJM2870F05 |
| IC | 872 | IC | S-816A33AMC-BAI |
| IC | 951 | IC | S-812C33AUA-C2N |
| Q | 401 | | IMH4 |
| Q | 402 | | IMH4 |

| =====Circuit Symbol and No. | | ===Part Name | Part No. |
|---|---|---|---|
| Q | 451 | Transistor | IMD2A |
| Q | 452 | Transistor | IMD2A |
| Q | 601 | Transistor | 2SC4117 |
| Q | 605 | Transistor | 2SA1576 |
| Q | 651 | Transistor | IMD2A |
| Q | 701 | Transistor | IMD2A |
| Q | 851 | Transistor | 2SB1243 |
| Q | 852 | Transistor | 2SB1185 |
| Q | 873 | Transistor | 2SB1243 |
| Q | 951 | Transistor | 2SD1857 |
| Q | 952 | Transistor | IMD2A |
| Q | 971 | Transistor | 2SB1260 |
| Q | 972 | Transistor | IMX1 |
| D | 451 | Diode | UDZS4R7(B) |
| D | 601 | Diode | UDZS6R2(B) |
| D | 604 | Diode | 1SS355 |
| D | 605 | Diode | 1SS355 |
| D | 651 | Diode | UDZS18(B) |
| D | 652 | Diode | UDZS18(B) |
| D | 851 | Diode | S2G-6600 |
| D | 871 | Diode | MPG06G-6415G50 |
| D | 901 | Diode | 5KP24A |
| D | 902 | Diode | MPG06G-6415G50 |
| D | 951 | Diode | UDZS5R6(B) |
| L | 651 | Inductor | CTF1473 |
| L | 701 | Inductor | CTF1473 |
| L | 871 | Inductor | LCYB47NJ1608 |
| L | 901 | Choke Coil 1.4mH | CTH1129 |
| TH | 901 | Poly Switch | RUE185 |
| X | 701 | Radiator 10.00MHz | CSS1428 |
| U | 801 | Power Supply Unit | CWR1072 |
| | | Digital Unit | CWX2749 |
| | | RF Unit | CWE1683 |
| EF | 501 | EMI Filter | CCG1051 |
| EF | 502 | EMI Filter | CCG1051 |
| EF | 503 | EMI Filter | CCG1051 |
| EF | 504 | EMI Filter | CCG1051 |
| EF | 505 | EMI Filter | CCG1051 |

## RESISTORS

| | | |
|---|---|---|
| R | 401 | RS1/16S562J |
| R | 402 | RS1/16S562J |
| R | 403 | RS1/16S122J |
| R | 404 | RS1/16S122J |
| R | 405 | RS1/16S473J |
| R | 406 | RS1/16S473J |
| R | 407 | RS1/16S102J |
| R | 408 | RS1/16S102J |
| R | 409 | RS1/16S103J |
| R | 410 | RS1/16S103J |
| R | 411 | RS1/16S103J |
| R | 412 | RS1/16S103J |
| R | 413 | RS1/16S472J |
| R | 414 | RS1/16S472J |
| R | 415 | RS1/16S472J |
| R | 416 | RS1/16S472J |
| R | 417 | RS1/16S0R0J |
| R | 418 | RS1/16S0R0J |
| R | 419 | RS1/16S0R0J |
| R | 420 | RS1/16S0R0J |
| R | 421 | RS1/16S221J |
| R | 422 | RS1/16S221J |
| R | 423 | RS1/16S221J |
| R | 424 | RS1/16S221J |
| R | 425 | RS1/16S104J |
| R | 426 | RS1/16S104J |
| R | 427 | RS1/16S104J |
| R | 428 | RS1/16S104J |
| R | 431 | RS1/16S473J |
| R | 432 | RS1/16S473J |

| =====Circuit Symbol and No. | | ===Part Name | Part No. |
|---|---|---|---|
| R | 451 | | RS1/16S222J |
| R | 452 | | RS1/16S222J |
| R | 453 | | RS1/16S103J |
| R | 502 | | RS1/16S101J |
| R | 503 | | RS1/16S101J |
| R | 508 | | RS1/16S101J |
| R | 509 | | RS1/16S101J |
| R | 510 | | RS1/16S101J |
| R | 511 | | RS1/16S101J |
| R | 514 | | RS1/16S101J |
| R | 515 | | RS1/16S101J |
| R | 519 | | RS1/16S101J |
| R | 520 | | RS1/16S101J |
| R | 521 | | RS1/16S101J |
| R | 522 | | RS1/16S101J |
| R | 523 | | RS1/16S101J |
| R | 524 | | RS1/16S101J |
| R | 525 | | RS1/16S101J |
| R | 601 | | RS1/16S473J |
| R | 602 | | RS1/16S104J |
| R | 614 | | RS1/16S473J |
| R | 615 | | RS1/16S153J |
| R | 616 | | RS1/16S223J |
| R | 617 | | RS1/16S473J |
| R | 618 | | RS1/16S473J |
| R | 651 | | RS1/4S101J |
| R | 652 | | RS1/4S101J |
| R | 653 | | RS1/16S473J |
| R | 654 | | RS1/16S103J |
| R | 701 | | RS1/16S102J |
| R | 702 | | RS1/16S822J |
| R | 703 | | RS1/16S473J |
| R | 705 | | RS1/16S101J |
| R | 706 | | RS1/16S473J |
| R | 707 | | RS1/16S272J |
| R | 708 | | RS1/16S102J |
| R | 711 | | RS1/16S102J |
| R | 713 | | RS1/16S473J |
| R | 714 | | RS1/16S473J |
| R | 715 | | RS1/16S473J |
| R | 716 | | RS1/16S473J |
| R | 717 | | RS1/16S473J |
| R | 718 | | RS1/16S223J |
| R | 720 | | RS1/16S223J |
| R | 721 | | RS1/16S103J |
| R | 722 | | RS1/16S103J |
| R | 723 | | RS1/16S103J |
| R | 724 | | RS1/16S103J |
| R | 876 | | RS1/10S0R0J |
| R | 951 | | RS1/16S472J |
| R | 957 | | RS1/16S223J |
| R | 971 | | RS1/16S223J |
| R | 972 | | RS1/16S101J |
| R | 974 | | RS1/16S102J |
| R | 975 | | RS1/16S102J |
| R | 976 | | RS1/16S152J |
| R | 977 | | RS1/16S102J |

## CAPACITORS

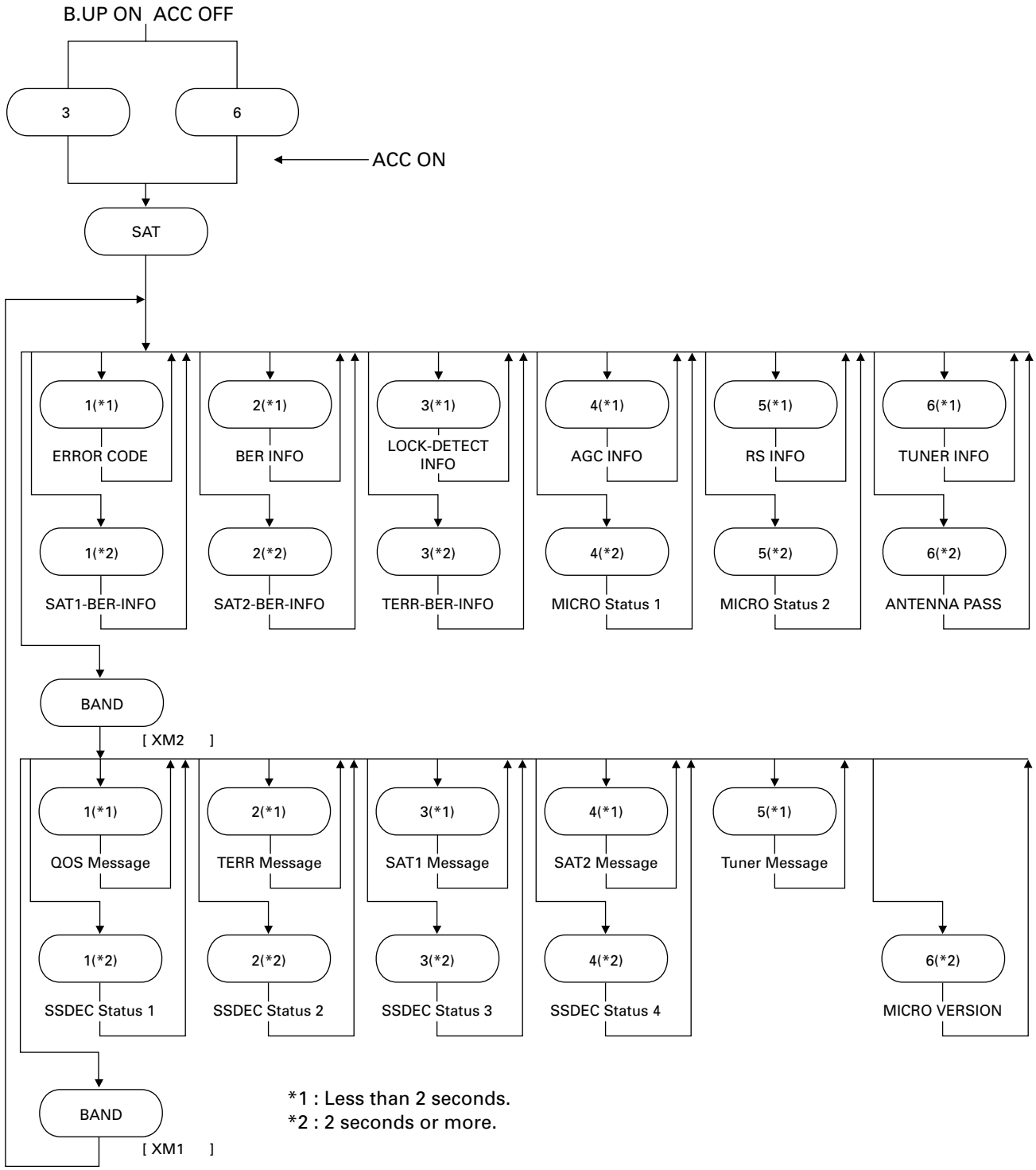
| | | |
|---|---|---|
| C | 401 | CKSRYB152K50 |
| C | 402 | CKSRYB152K50 |
| C | 403 | CEJQ220M16 |
| C | 404 | CEJQ220M16 |
| C | 405 | CKSRYB221K50 |
| C | 406 | CKSRYB221K50 |
| C | 407 | CCSRCH470J50 |
| C | 408 | CCSRCH470J50 |
| C | 413 | CEJQ4R7M35 |
| C | 414 | CEJQ4R7M35 |

| =====Circuit Symbol and No. | ===Part Name | Part No. |
|---|---|---|
| C 415 | | CEJQ4R7M35 |
| C 416 | | CEJQ4R7M35 |
| C 417 | | CKSQYB102K50 |
| C 418 | | CKSQYB102K50 |
| C 419 | | CKSQYB102K50 |
| C 420 | | CKSQYB102K50 |
| C 421 | | CKSRYB104K16 |
| C 422 | | CKSRYB104K16 |
| C 423 | | CKSRYB473K25 |
| C 451 | | CEAT101M10 |
| C 452 | | CKSRYB104K16 |
| C 453 | | CKSRYB104K16 |
| C 454 | | CKSRYB102K50 |
| C 651 | | CKSQYB102K50 |
| C 652 | | CKSQYB102K50 |
| C 655 | | CKSRYB104K16 |
| C 656 | | CKSQYB104K16 |
| C 701 | | CEJQ100M16 |
| C 702 | | CCSRCH101J50 |
| C 703 | | CKSRYB223K50 |
| C 704 | | CKSRYB103K50 |
| C 705 | | CKSRYB103K50 |
| C 706 | | CKSRYB103K50 |
| C 809 | | CEAT101M10 |
| C 810 | | CKSRYB471K50 |
| C 851 | | CSZS4R7M10 |
| C 852 | | CKSRYB103K50 |
| C 853 | | CSZS4R7M10 |
| C 854 | | CKSRYB103K50 |
| C 855 | | CSZSR4R7M16 |
| C 856 | | CKSRYB473K50 |
| C 857 | | CKSRYB104K16 |
| C 871 | | CEJQ100M16 |
| C 872 | | CKSRYB104K16 |
| C 873 | | CKSRYB104K16 |
| C 874 | | CSZS4R7M10 |
| C 875 | | CKSRYB103K50 |
| C 876 | | CSZSR4R7M16 |
| C 877 | | CKSRYB104K16 |
| C 878 | | CKSRYB104K16 |
| C 901 | | CEAT471M25 |
| C 902 | | CKSQYB473K50 |
| C 903 | | CKSQYB473K50 |
| C 904 | | CEAT471M25 |
| C 951 | | CEJQ220M16 |
| C 952 | | CKSRYB472K50 |
| C 953 | | CKSRYB474K10 |
| C 971 | | CEJQ220M16 |
| C 972 | | CKSRYB473K50 |

# 6. ADJUSTMENT

## 6.1 TEST MODE

● Flow Chart



## ● Diagnostic mode

1. To Enter the Diagnostic mode
   1) B.UP on , ACC off.
   2) ACC on while pressing the 3 and 6 keys together.

2. To Exit from the Diagnostic mode
   ACC off.

3. Contents of the Diagnostic mode

| Number | Mode name | Entry method | Summerized Description |
|---|---|---|---|
| 1 | ERROR CODE | Press the number 1 key for less than two seconds while in XM1 of the Diagnostic mode. | Error code of the defective location identifier. |
| 2 | BER INFO | Press the number 2 key for less than two seconds while in XM1 of the Diagnostic mode. | Error rate (one effective digit) for the Bitabi signals of the terrestrial wave + satellite wave 1 + satellite wave 2. |
| 3 | LOCK-DETECT INFO | Press the number 3 key for less than two seconds while in XM1 of the Diagnostic mode. | Decryption LOCK for the terrestrial wave + satellite wave 1 + satellite wave 2 (MCM and TDM for terrestrial wave, QPSK and TDM for satellite waves). |
| 4 | AGC INFO | Press the number 4 key for less than two seconds while in XM1 of the Diagnostic mode. | AGC values (two sets of four-digit decimal values) of the terrestrial wave and satellite waves. |
| 5 | RS INFO | Press the number 5 key for less than two seconds while in XM1 of the Diagnostic mode. | Number of Read-Solomon error correction bytes (four digits of hexadecimal value) + number of error frames (four digits of hexadecimal value). |
| 6 | TUNER INFO | Press the number 6 key for less than two seconds while in XM1 of the Diagnostic mode. | Information on LOCK/UNLOCK of PLL and Synchronous assembly (A/B). |
| 7 | SAT1-BER-INFO | Press the number 1 key for more than two seconds while in XM1 of the Diagnostic mode. | Bitabi signal decryption error rate (three effective digits) for satellite wave 1. |
| 8 | SAT2-BER-INFO | Press the number 2 key for more than two seconds while in XM1 of the Diagnostic mode. | Bitabi signal decryption error rate (three effective digits) for satellite wave 2. |
| 9 | TERR-BER-INFO | Press the number 3 key for more than two seconds while in XM1 of the Diagnostic mode. | Bitabi signal decryption error rate (three effective digits) for terrestrial waves. |
| 10 | MICRO Status 1 | Press the number 4 key for more than two seconds while in XM1 of the Diagnostic mode. | System operation mode (two digits of hexadecimal value) + XM operation mode 1 (two digits of hexadecimal value). |
| 11 | MICRO Status 2 | Press the number 5 key for more than two seconds while in XM1 of the Diagnostic mode. | XM operation mode 2 (two digits of hexadecimal value) + XM operation mode 3 (two digits of hexadecimal value). |
| 12 | ANTENNA PASS | Press the number 6 key for more than two seconds while in XM1 of the Diagnostic mode. | Bypass of the antenna connection check sequence (released by resetting the system). |
| 13 | QOC Message | Press the number 1 key for less than two seconds while in XM2 of the Diagnostic mode. | Display of the quality of service value (two digits of decimal value). |
| 14 | TERR Message | Press the number 2 key for less than two seconds while in XM2 of the Diagnostic mode. | Decryption LOCK/UNLOCK onto the terrestrial wave signal, decryption rate of the Bitabi signal (two effective digits of decimal value) + RS error correction rate (two effective digits of decimal value) + RS error rate (two effective digits of decimal value). |

| Number | Mode name | Entry method | Summerized Description |
|---|---|---|---|
| 15 | SAT1 Message | Press the number 3 key for less than two seconds while in XM2 of the Diagnostic mode. | Decryption LOCK/UNLOCK of satellite wave 1 signal, decryption rate of Bitabi signal (two effective digits of decimal value) + RS error correction rate (two effective digits of decimal value) + RS error rate (two effective digits of decimal value). |
| 16 | SAT2 Message | Press the number 4 key for less than two seconds while in XM2 of the Diagnostic mode. | Decryption LOCK/UNLOCK of satellite wave 2 signal, decryption rate of Bitabi signal (two effective digits of decimal value) + RS error correction rate (two effective digits of decimal value) + RS error rate (two effective digits of decimal value). |
| 17 | Tuner Message | Press the number 5 key for less than two seconds while in XM2 of the Diagnostic mode. | Information on LOCK/UNLOCK of PLL and connection information of terrestrial wave and satellite wave antennas. |
| 18 | Unused | | |
| 19 | SSDEC Status 1 | Press the number 1 key for more than two seconds while in XM2 of the Diagnostic mode. | PC reception synchronization/asynchronization + overflow count during voice service data input + underflow count during PCM output. |
| 20 | SSDEC Status 2 | Press the number 2 key for more than two seconds while in XM2 of the Diagnostic mode. | General error codes for SSDEC (six effective digits of hexadecimal value). |
| 21 | SSDEC Status 3 | Press the number 3 key for more than two seconds while in XM2 of the Diagnostic mode. | SSDEC service extraction error code 1 (four effective digits of hexadecimal value). |
| 22 | SSDEC Status 4 | Press the number 4 key for more than two seconds while in XM2 of the Diagnostic mode. | SSDEC service extraction error code 2 (four effective digits of hexadecimal value). |
| 23 | Unused | | |
| 24 | MICRO VERSION | Press the number 6 key for more than two seconds while in XM2 of the Diagnostic mode. | Major version (three digits of decimal value) + minor version (one digit decimal value). |

4. Details of the Diagnostic mode

4.1 BERINFO

Display format: [(1)(2) (3) (4)(5) (6) (7)(8)].

(1) The Bitabi signal decryption error rate (effective value) for satellite wave 1*.
(2) The Bitabi signal decryption error rate (truncated binary exponential, with negative sign abbreviated) for satellite wave 1*.
(3) Spacing character.
(4) The Bitabi signal decryption error rate (effective value) for satellite wave 2*.
(5) The Bitabi signal decryption error rate (truncated binary exponential, with negative sign abbreviated) for satellite wave 2*.
(6) Spacing character.
(7) The Bitabi signal decryption error rate (effective value) for terrestrial waves*.
(8) The Bitabi signal decryption error rate (truncated binary exponential, with negative sign abbreviated) for terrestrial waves*.

* Each piece of information is effective following the initialization of CDEC. The updating interval is 432 ms. If not any of the modulated wave signals can be received (that is, the signal cannot be LOCKed), then a hyphen ("-") will be displayed.
"If notany of the modulated wave signals can be received" it represents a condition that the modulated signals could not receive the signals described in section 4.2.
Display example: If the satellite wave 1 = 10%, satellite wave 2 = 3.4% and terrestrial wave = 0.23%, the display will show [11_32_23].

4.2 LOCK-DETECT INFO
Display format: [(1)(2) (3) (4)(5) (6) (7)(8)].

(1) The modulated QPSK signal of satellite wave 1 can be received (L) / cannot be received (-).
(2) The modulated TDM signal of satellite wave 1 can be received (L) / cannot be received (-).
(3) Spacing character.
(4) The modulated QPSK signal of satellite wave 2 can be received (L) / cannot be received (-).
(5) The modulated TDM signal of satellite wave 2 can be received (L) / cannot be received (-).
(6) Spacing character.
(7) The modulated QPSK signal of terrestrial wave can be received (L) / cannot be received (-).
(8) The modulated TDM signal of terrestrial wave can be received (L) / cannot be received (-).

Each piece of information is effective following the initialization of CDEC. The updating interval is 432 ms.

Display example: If the QPSK signal of satellite wave, TDM signal of the satellite wave 2, and MCM signal of the terrestrial wave are not locked, the display will show [-L_L-_-L].

4.3 AGC INFO
Display format: [XXXXYYYY].

X: The AGC signal count value of the satellite wave (four digits of a decimal value).
Y: The AGC signal count value of the terrestrial wave (four digits of a decimal value).
Each piece of information becomes effective following the initialization of CDEC. The updating interval is 432 ms.
Display example: If the satellite wave's AGC = 123, while the terrestrial wave's AGC = 32, the display will show [01230032].

4.4 RS INFO
Display format: [XXXXYYYY].

X: Number of error correction bytes from Read Solomon decryption (four digits of hexadecimal value).
Y: Number of error frames from Read Solomon decryption (four digits of hexadecimal value).
Each piece of information becomes effective following the initialization of CDEC. The updating interval is 432 ms.

Display example: If the error correction bytes = 0 x 0040, while the error frames = 0 x 0010, the display will show [00400010].

4.5 TUNER INFO
Display format: [X_YYYYYY].

X: Synchronous ensemble (A/B).
_: Spacing character.
Y: LOCK/UNLOCK status of PLL (LOCK_/UNLOCK).
The information becomes effective following the synchronization process during the system start up.
The updating interval is 16 ms.

Display example: If the PLL is locked with ensemble A, the display will show [A_LOCK__].

4.6 ERROR CODE

Display format: [ERROR_XX].

_: Spacing character.

X: Error occurring (two digits of hexadecimal value). The upper digit is for the major (physical) error, while the lower digit is for the minor error (temporary or partial errors). Refer to the following table for details:

| Code value | | Description | Error location |
|---|---|---|---|
| Major | Minor | | |
| | 0 | No Error | No minor error. |
| | 1 | CDEC Communication Error | The line for communicating with CDEC. |
| | 2 | SSDEC Communication Error | The line for communicating with SSDEC. |
| | 3 | SSDEC No Response | No SSDEC response (DSP core freeze). |
| | 4 | No Signal | 100% error of Bitabi signal decryption. |
| | 5 | Activation Required | Not activated. |
| | 6 | Authorization Required | Not authorized. |
| 0 | | No Error | No major error. |
| 1 | | ANTENNA No Connect | Antenna not connected. |
| 2 | | ANTENNA Short | Shorted antenna cable. |
| 3 | | PLL UNLOCK | PLL cannot be synchronized (RF circuit failure). |
| 4 | | Reserved | Undefined. |
| 5 | | NVM Error | Defective NVM inside CAP. |
| 6 | | CAP Error | Defective CAP (including situations where CAP is not connected). |
| 7 | | Version Unknown | Unknown DSP core software version. |

Display example: If the antenna is not connected, the display will show [ERROR_14] (no signal due to unconnected antenna).

4.7 SAT1-BER-INFO

Display format: [1_X. XXEY].

X: Bitabi signal decryption error rate (effective three digits).
Y: Truncated binary exponential (with negative sign abbreviated) of the error rate.
_: Spacing character.

The information becomes effective following the initialization of CDEC. The updating interval is 432 ms. If the wave's modulated signal cannot be received (meaning such a signal cannot be locked on), a hyphen ("-") will be displayed.

Display example: If the error rate is 0.560%, the display will show [1_5.60E3].

4.8 SAT2-BER-INFO

Display format: [2_X. XXEY].

X: Bitabi signal decryption error rate (effective three digits).
Y: Truncated binary exponential (with negative sign abbreviated) of the error rate.
_: Spacing character.

The information becomes effective following the initialization of CDEC. The updating interval is 432 ms. If none of wave's modulated signal can be received (meaning such a signal cannot be locked on), a hyphen ("-") is displayed.

Display example: If a signal cannot be locked on, the display will show [2_------].

4.9 TERR-BER-INFO
Display format: [T_X. XXEY].

X: Bitabi signal decryption error rate (effective three digits).
Y: Truncated binary exponential (with negative sign abbreviated) of the error rate.
_: Spacing character.

The information will become effective following the initialization of CDEC. The updating interval is 432 ms. If the wave's modulated signal cannot be received (meaning such a signal cannot be locked on), a hyphen ("-") will be displayed.

Display example: If the error rate is 0%, the display will show [T_0.00E0].

4.10 MICRO Status 1
Display format: [M1_XX_YY].

X: System operation mode (two effective digits of hexadecimal value).
Y: XM operation mode 1 (two effective digits of hexadecimal value).
_: Spacing character.

System operation mode table

| Mode number | Mode name | Description |
|---|---|---|
| 00 | STANDBY | Standby mode. |
| 01 | PWRON | System's powering on process. |
| 02 | 1STKEY | Waiting for the 1st key signal from the grille (for FM modulator types only). |
| 05 | ENABLECHK | Verifying connection (for IP-BUS types only). |
| 10 | OFF | XM OFF with ACC ON. |
| 11 | ANT_OFF | Forcing OFF due to a short-circuited antenna. |
| 21 | ANT_ON | Turning ON with a short-circuited antenna. |
| 22 | ANT_FLASH | Displaying the blinking warning indicator for the short-circuited antenna. |
| 2F | ON | Turning XM ON. |
| 81 | MODSET | Modulator setting mode (for FM modulator types only). |
| 82 | MODESET_FREQ | Setting the frequency in the modulator setting mode. |
| 83 | MODSET_LEV | Setting the modulation level in the modulator setting mode. |
| 84 | MODOFFENT | Waiting for a mode entry in the modulator setting mode. |
| 85 | MODHOLD | Waiting for a key entry in the modulator setting mode. |

XM operation mode 1 table

| Mode number | Mode name | Description |
|---|---|---|
| 00 | HALT | Completed the operation to turn XM OFF. |
| 01 | ON | Turning XM to ON. |
| 02 | CHRD | Recalling the pre-set channel. |
| 03 | CHWD | Storing the pre-set channel. |
| 04 | CHUP | Dialing up the pre-set channel. |
| 05 | CHDN | Dialing down the pre-set channel. |
| 06 | PROGUP | Dialing the channel up. |
| 07 | PROGDN | Dialing the channel down. |
| 08 | PROG10UP | Dialing the channel up quickly (rough dialing). |
| 09 | PROG10DN | Dialing the channel down quickly (rough dialing). |
| 0A | CATUP | Searching category upwards. |
| 0B | CATDN | Searching category downwards. |
| 0C | CATSUP | Searching inside a category upwards. |
| 0D | CATSDN | Searching inside a category downwards. |
| 0E | TRIGON | No longer receiving the SID signal . |
| 10 | RX | Receiving. |
| 12 | CHUP_WAIT | Waiting for the pre-set channel dial up key to be released. |
| 13 | CHDN_WAIT | Waiting for the pre-set channel dial down key to be released. |
| 14 | CHUP_REL | Releasing the pre-set channel dial up key . |

| Mode number | Mode name | Description |
|---|---|---|
| 15 | CHDN_REL | Releasing the pre-set channel dial down key. |
| 16 | PROG10UP_WAIT | Waiting for the rough channel dial up key to be released. |
| 17 | PROG10DN_WAIT | Waiting for the rough channel dial down key to be released. |
| 18 | PROG10UP_REL | Releasing the rough channel dial up key. |
| 19 | PROG10DN_REL | Releasing the rough channel dial down key. |
| 1A | CATUP_WAIT | Waiting for the category dial up key to be released. |
| 1B | CATDN_WAIT | Waiting for the category dial down key to be released. |
| 1C | CATUP_REL | Releasing the category dial up key. |
| 1D | CATDN_REL | Releasing the category dial down key. |

Display example: If the system is receiving signals, the display will show [M1_1F_10].

4.11 MICRO Status2

Display format: [M2_XX_YY].

X: XM operation mode 2 (two effective digits of hexadecimal value).
Y: XM operation mode 3 (two effective digits of hexadecimal value).
_: Spacing character.

XM operation mode 2 table

| Mode number | Mode name | Description |
|---|---|---|
| 00 | STOP | Completed the API control process. |
| 01 | START | Starting the API control process. |
| 02 | GETSID | Acquired SID . |
| 04 | GETPROGNAME | Switching programs. |
| 05 | OFF | Turning the operation OFF. |
| 06 | SETUP | Starting the application. |
| 07 | NEXTPROG | Switching to the next program. |
| 08 | SELPROG | Selecting a program. |
| 0A | NEXTCAT | Acquiring the next category. |
| 0D | NOSID | SID not available. |
| 0E | GETID | Acquiring the HWID code. |
| 30 | NEXTPROG1 | Performing the first half of transfer process to the next channel. |
| 31 | NEXTPROG2 | Performing the second half of transfer process to the next channel. |
| 32 | SELPROG1 | Selecting a program from NEXTPROG1. |
| 33 | SELPROG2 | Selecting a program from NEXTPROG2. |

XM operation mode 2 table

| Mode number | Mode name | Description |
|---|---|---|
| 00 | STOP | Turning off XM circuit completed. |
| 01 | PWROFFW | Turning the XM circuit off. |
| 02 | STBYWT | Resetting SSDEC. |
| 03 | PWRON | Starting the XM circuit. |
| 04 | PWRONWT | Waiting for the XM circuit power ON to stabilize. |
| 05 | STBY | Starting SSDEC reset. |
| 06 | PREMUTE | Starting pre-mute DAC. |
| 07 | PREMUTEWT | Waiting for pre-mute DAC. |
| 08 | DWLDWT | Downloading the DSP patch code. |
| 09 | DWLD | Starting to download the DSP patch code. |
| 0A | INIT | Starting the initialization of SSDEC. |
| 0B | INIT2 | Initializing SSDEC (Step 2). |
| 0C | INIT3 | Initializing SSDEC (Step 3). |
| 0D | INIT4 | Initializing SSDEC (Step 4). |
| 0E | INIT5 | Initializing SSDEC (Step 5). |
| 0F | INIT6 | Initializing SSDEC (Step 6). |
| 10 | INIT7 | Initializing SSDEC (Step 7). |

| Mode number | Mode name | Description |
|---|---|---|
| 11 | INIT8 | Initializing SSDEC (Step 8). |
| 12 | INIT9 | Initializing SSDEC (Step 9). |
| 13 | INIT10 | Initializing SSDEC (Step 10 - Power Up command issued). |
| 14 | SLEEPWT | Waiting for a response to the Power Off command. |
| 15 | SLEEP | Issuing the Power Off command. |
| 16 | INIT10WT | Initializing SSDEC (waiting for a response to the Power Up command). |
| 18 | INIT11 | Initializing SSDEC (Step 11 - issuing Force Update command). |
| 19 | INIT11WT | Waiting for a response to the Force Update command. |
| 1F | HOLD | Waiting for other controls to complete their processes. |
| 20 | IDEL | Completing control processes. |
| 21 | READY1 | Controlling pre-start readiness 1. |
| 22 | READY2 | Controlling pre-start readiness 2. |
| 25 | PURGECOM | Controlling pre-start readiness 3 (waiting for the completion of processes by unnecessary commands). |
| 26 | PURGECOM1 | Waiting for completion of unnecessary OFF command processes. |
| 27 | RX_PREMUTE | Starting pre-mute DAC outside the start up operations. |
| 28 | RX_PREMUTE_WT | Waiting for the completion of the pre-mute DAC outside the start up operations. |
| 29 | RX_AFTMUTE | Starting the after-mute DAC outside the start up operations. |
| 2A | RX_AFTMUTE_WT | Waiting for the completion of the after-mute DAC outside the start up operations. |
| 2C | SETENS | Switching the ensemble of the PLL. |
| 2D | SETENSWT | Waiting for the switching of the ensemble of the PLL. |
| 2E | SETPCID | Switching PCID of CDEC. |
| 2F | SETENSWT2 | Checking LDET, following the switching of the ensemble of the PLL. |
| 30 | CHECK_RQ | Outputting the Service/Channel Check, Channel UpDown or Program UpDown command. |
| 31 | CHECK_RQ1 | Issuing the Channel Check command to a channel with Channel UpDown or Program UpDown results. |
| 32 | CHECK_WT | Waiting for the response to the command output by CHECK_RQ. |
| 33 | CHECK_WT1 | Waiting for the response to the command output by CHECK_RQ1. |
| 34 | SERVICE_EXT_RQ | Issuing the Service Extract command. |
| 35 | SERVICE_EXT_WT | Waiting for the response to the Service Extract command. |
| 37 | NXTCATNO | Acquiring the next category number. |
| 38 | GETBIC | Acquiring the various labels. |
| 39 | GETBICWT | Waiting for the acquisition of the various labels. |
| 3A | EXT_CHK | Starting to check the Extract status. |
| 3B | EXTERR_WT | Checking the Extract status. |
| 3C | BICADF_CHG_CHK | Checking the changes to the various program information. |
| 3D | ANT_CHK | Checking the antenna connection status. |
| 3E | ACTIVATE_CHK | Checking the Activation status. |
| 3F | UPDATE_CATLIST | Starting to update the category list. |
| 40 | UPDATE_CATLISTWT | Updating the category list. |
| E0 | HWERROR | Interrupting the start up operation due to a CAP error. |
| E1 | VERERROR | Interrupting the start up operation due to unknown version of the DSP core software. |
| E2 | ANTSHORT | Antenna short-circuited. |
| E3 | ANTOPEN | Antenna is not connected. |
| E4 | NOSIGNAL | All Bitabi signal decryption error rates are 100%. |
| E5 | RF_UNLOCK | Cannot lock on to the PLL signal. |
| E6 | SERV_UNAVAIL | Cannot locate the specified program. |
| E7 | TYPE_UNAVAIL | Cannot locate a program with the specified service type. |
| E8 | PROG_UNAVAIL | Cannot locate a program with the specified category. |
| E9 | UNKNOWN_PC | The PC signal is not of a standard format. |
| EA | ACT_REQ | Received an Activation request. |
| EB | AUTH_REQ | Received an Authorization request. |
| EC | OFFAIR | Service is off the air. |

| Mode number | Mode name | Description |
|---|---|---|
| ED | DIFF_ENS | Specified Primary and Secondary PCID do not exist in an identical ensemble. |
| EE | PC_UNDETECT | The PC signal of the specified program cannot be received. |
| EF | SID_UNDETECT | SID of the specified program cannot be verified. |
| F0 | SCT_UNDETECT | The service component type of the specified program cannot be verified. |
| F1 | AUTH_MISS | Updating the encryption key. |
| F3 | RAT_BLOCK | Have not signed up for the charge service contract. |
| F4 | RAT_LOW | A program has been selected that is outside the range of the charge contract. |
| F5 | TOD_ROLLBACK | The time information, managed inside the DSP core and the time information aired, do not match. |
| FF | REQ_RETRY | Failure occurred with the SSDEC (a restart is requested). |

Display example: If the system is receiving, the display will momentarily show [M2_00_20].

4.12 ANTENNA PASS

No display.

If an antenna is not connected, and if this setting is made while the system is displaying the "ANTENNA" message, connection checks will not be conducted until the system has been reset (the system will assume normal operation without an antenna check).

4.13 QOS Message

Display format: [1AABBCCD].

A: The Bitabi error rate (two effective digits of decimal value) of terrestrial wave*1.
B: The Bitabi error rate (two effective digits of decimal value) of satellite wave 1*1.
C: The Bitabi error rate (two effective digits of decimal value) of terrestrial wave 2*1.
D: The quality of service (QOS) value (a single effective digit decimal value)*2.

*1: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX". If a signal is not received, the display will show "NS."
*2: The single digit display may show from 0 to 9. If the display information is being acquired, the display will show "-". For 10 and over, the display will show "X".

4.14 TERR Message

Display format: [2ABBCCDD]

A: The locking status of the terrestrial wave*1.
B: The terrestrial wave Bitabi signal error rate (two effective digits of decimal value)*2.
C: The terrestrial wave Read-Solomon symbol error rate (two-effective digits of decimal value)*3.
D: The terrestrial wave Read-Solomon non-correction code word (two effective digits of decimal value)*4.
*1: The "-" will be displayed while the system is acquiring the information, "N" if the signal is not locked on, "D" if only the demodulator is locked, and "T" if both the TDM and demodulator are locked on.
*2: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX". If a signal is not received, the display will show "NS."
*3: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".
*4: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".

4.15 STA1 Message
Display format: [3ABBCCDD].

A: The locking status of the satellite wave 1*1.
B: The satellite wave 1 Bitabi signal error rate (two effective digits of decimal value)*2.
C: The satellite wave 1 Read-Solomon symbol error rate (two-effective digits of decimal value)*3.
D: The satellite wave 1 Read-Solomon non-correction code word (two effective digits of decimal value)*4.
*1: The "-" will be displayed while the system is acquiring the information, "N" if the signal is not locked on, "D" if only the demodulator is locked, and "T" if both the TDM and demodulator are locked on.
*2: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX". If no signal is received, the display will show "NS."
*3: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".
*4: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".

4.16 SAT2 Message
Display format: [4ABBCCDD].

A: The locking status of the satellite wave 2*1.
B: The satellite wave 2 Bitabi signal error rate (two effective digits of decimal value)*2.
C: The satellite wave 2 Read-Solomon symbol error rate (two-effective digits of decimal value)*3.
D: The satellite wave 2 Read-Solomon non-correction code word (two effective digits of decimal value)*4.
*1: The "-" will be displayed while the system is acquiring the information, "N" if the signal is not locked on, "D" if only the demodulator is locked, and "T" if both the TDM and demodulator are locked on.
*2: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX". If no signal is received, the display will show "NS."
*3: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".
*4: The two-digit display may show from 0 to 99. If the display information is being acquired, the display will show "-". For 100, the display will show "XX".

4.17 Tuner Message
Display format: [5AB____].

A: The locking status of the PLL signal (L= locked, U = unlocked).
B: Antenna connection status (D= normal, U = connection failure).

4.18 SSDEC Status1
Display format: [6AAABBCC].

A: The synchronization status of the PC signal (S10 = synchronized, U01 = asynchornous).
B: Overflow count during voice service data input (two effective digits of hexadecimal value).
C: Underflow count during the PCM output (two effective digits of hexadecimal value).

4.19 SSDEC Status2
Display format: [7_AAAAAA].

A: General error information of SSDEC (six effective digits of hexadecimal value).

4.20 SSDEC Status3
Display format: [8___AAAA].

A: The Extract error information 1 of the SSDEC (four effective digits of hexadecimal value).

4.21 SSDEC Status4
Display format: [9____AAAA].

A: The Extract error information 2 of the SSDEC (four effective digits of hexadecimal value).

4.22 MICRO VERSION
Display format: [VERAAA. B].

A: Major version (three effective digits of decimal value).
B: Minor version (a single effective digit of decimal value).

Display example: If the Micro version is 4.7, the display will show [VER004.7].

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

● **Removing the Case Unit (not shown)**

1. Remove the eleven screws and then remove the Case Unit.

---

● **Removing the Main Unit (Fig.1)**

1 Straighten the tabs at five locations indicated.

2 Remove the three screws and then remove the Main Unit.

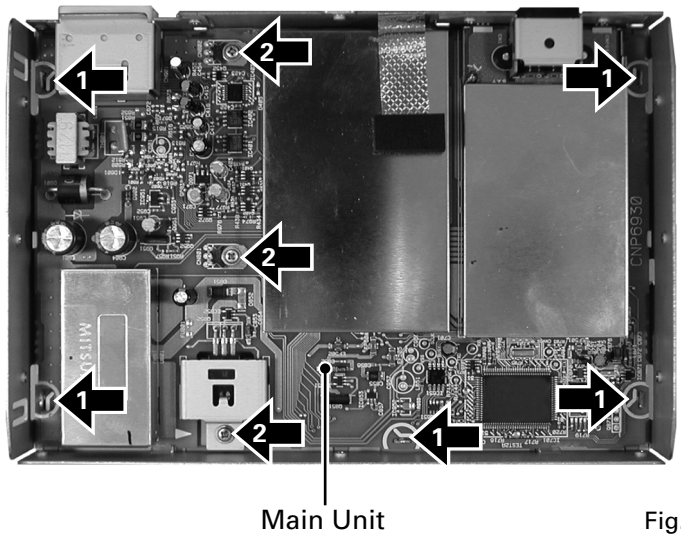



Fig.1

---

● **Removing the RF Unit (Fig.2)**

1 Remove the solder and then straighten the tabs at six locations indicated.

Remove the RF Unit.

● **Removing the Digital Unit (Fig.2)**

2 Remove the solder and then straighten the tabs at five locations indicated.

Remove the Digital Unit.

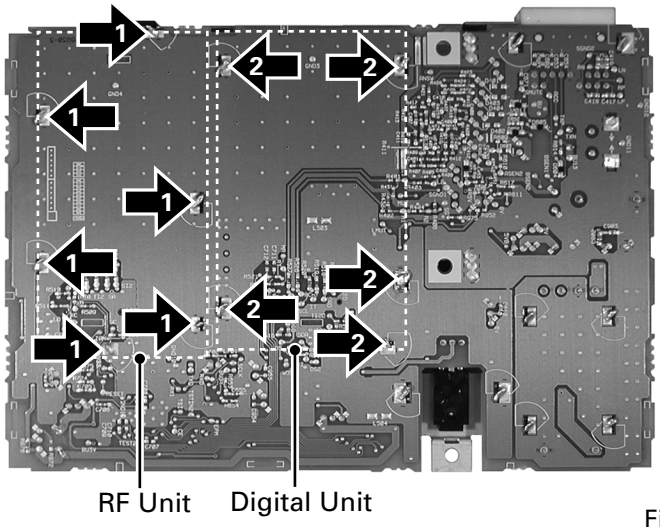



Fig.2

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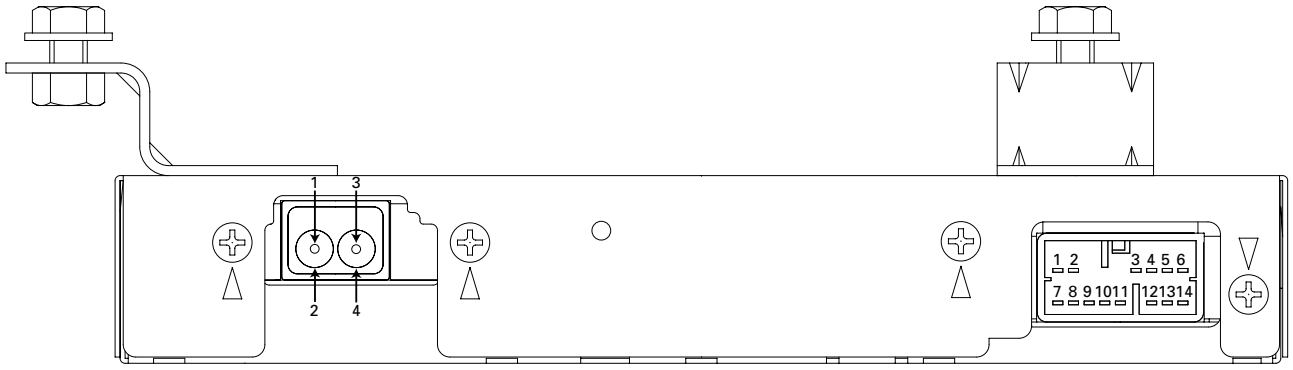
## 7.1.2 CONNECTOR FUNCTION DESCRIPTION




XM ANTENNA

| | |
|---|---|
| 1 | TER |
| 2 | GND |
| 3 | SAT |
| 4 | GND |

GA-NET

| | |
|---|---|
| 1 | +B |
| 2 | SYSACC |
| 3 | BUS GND |
| 4 | NC |
| 5 | R+ |
| 6 | L+ |
| 7 | +B |
| 8 | NC |
| 9 | BUS+ |
| 10 | BUS- |
| 11 | GND |
| 12 | NC |
| 13 | R- |
| 14 | L- |

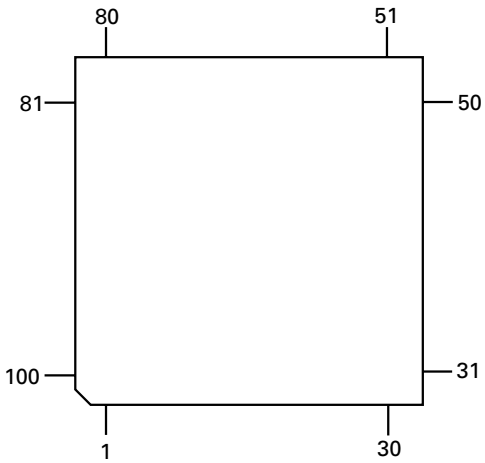
## 7.2 IC

● **Pin Functions (PD5818A)**

| Pin No. | Pin Name | I/O | Function and Operation |
|---|---|---|---|
| 1 | XMDT | O | RF Unit communication data output |
| 2 | XMCLK | O | RF Unit communication clock output |
| 3,4 | NC | | Not used |
| 5 | SDA | O | Digital Unit communication data output |
| 6 | SDAIN | I | Digital Unit communication data input |
| 7 | SCL | O | Digital Unit communication clock output |
| 8 | BYTE | I | External bus width select input |
| 9 | CNVSS | I | Processor mode select input |
| 10,11 | NC | | Not used |
| 12 | $\overline{\text{RESET}}$ | I | Reset input |
| 13 | XOUT | | Clock output |
| 14 | VSS | | GND |
| 15 | XIN | | Clock input |
| 16 | VCC | | Power supply |
| 17 | NMI | I | NMI input |
| 18 | NC | | Not used |
| 19 | EVT_IRQ | I | SSDEC communication interrupt input |
| 20 | INTR | I | INTR input |
| 21 | RX2 | I | IP-BUS connect input |
| 22 | IPPW | O | IP-BUS driver power supply control output |
| 23-28 | NC | | Not used |
| 29 | RX1 | I | IP-BUS data input |
| 30 | TX | O | IP-BUS data output |
| 31 | TXD | O | IP-BUS data output |
| 32 | RXD | I | IP-BUS data input |
| 33 | SCLK | I | Flash memory rewrite clock input |
| 34 | BUSY | O | Flash memory rewrite select output |
| 35 | DACDT | O | DAC IC communication data output |
| 36 | TSI | | Not used |
| 37 | DACCLK | O | DAC IC communication clock output |
| 38,39 | NC | | Not used |
| 40 | ACCPW | O | Power supply control output |
| 41 | EPM | I | Flash memory rewrite select input |
| 42 | FMIPSW | I | FM/IP-BUS select sense input |
| 43 | TESTIN | I | Test program sense input |
| 44 | MUT | O | Mute output |
| 45 | ANSW | O | Analog switch output |
| 46 | CE | I | Flash memory rewrite input |
| 47-49 | NC | | Not used |
| 50 | LMUT | O | Not used |
| 51-54 | NC | | Not used |
| 55 | LOK_DET | I | RF Unit lock signal input |
| 56 | NC | | Not used |
| 57 | CTL | O | Antenna control output |
| 58 | LE | O | RF Unit chip select output |
| 59 | DAC_EN | O | DAC IC chip select output |
| 60 | NC | | Not used |
| 61 | MRSET | O | CDEC IC reset output |
| 62 | VDD | | Power supply |
| 63 | NC | | Not used |
| 64 | VSS | | GND |
| 65,66 | NC | | Not used |
| 67 | RESET_N | O | SDEC reset output |
| 68-71 | NC | | Not used |
| 72 | TST2 | I | IP-FLASH urgent write control input |
| 73 | DDCDET | I | DC/DC converter anusual detect input |
| 74 | ASEN | I | ACC sense input |

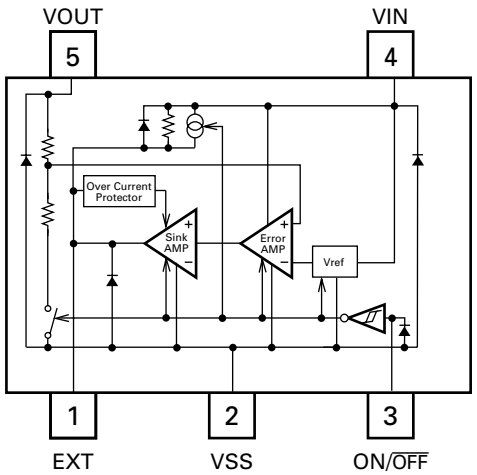
| Pin No. | Pin Name | I/O | Function and Operation |
|---|---|---|---|
| 75 | $\overline{\text{BSEN}}$ | I | Back up sense input |
| 76,77 | NC | | Not used |
| 78 | RDT | O | External ROM data output |
| 79 | RCK | O | External ROM clock output |
| 80 | RCS | O | External ROM chip select output |
| 81-83 | NC | | Not used |
| 84 | XMPW | O | Power supply control output (XM TUNER Source ON) |
| 85 | ANTPW | O | Not used |
| 86-90 | NC | | Not used |
| 91 | SAT_ANT | I | Satellite antenna detect input |
| 92 | TER_ANT | I | TERRESTRIAL antenna detect input |
| 93-95 | NC | | Not used |
| 96 | AVSS | | Analog GND |
| 97 | NC | | Not used |
| 98 | VREFA | | A/D converter power supply |
| 99 | AVDD | | Analog power supply |
| 100 | XMDT | I | RF Unit data input |

*PD5818A

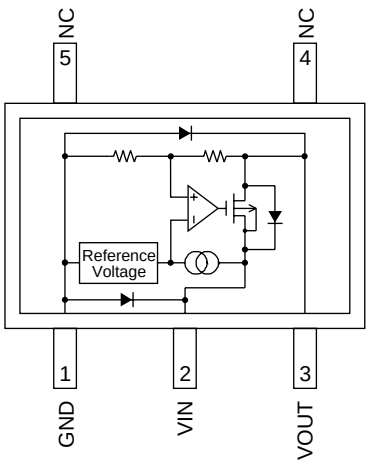



IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

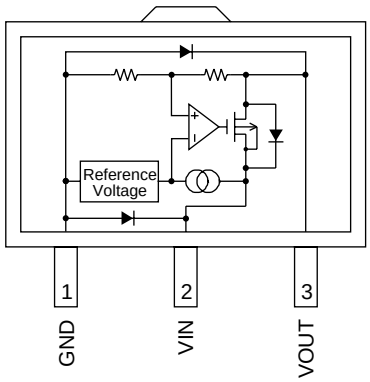
*S-816A25AMC-BAA



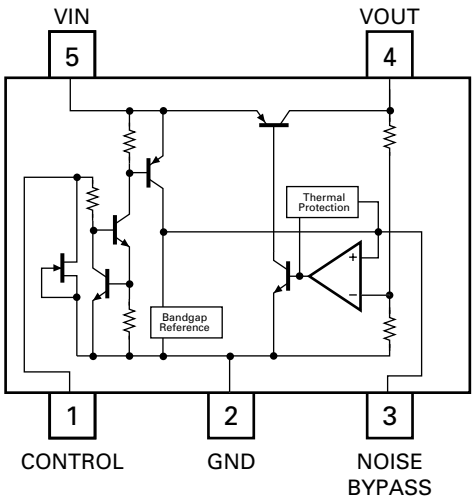

*S-812C25AMC-C2F



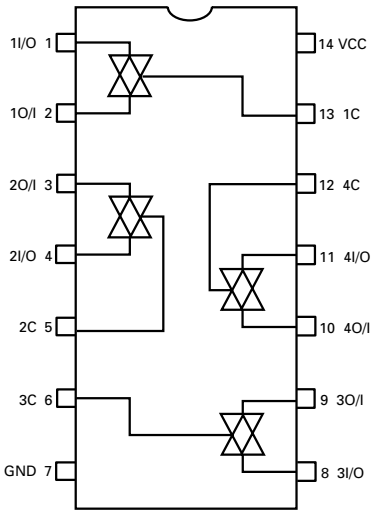

*S-812C33AUA-C2N



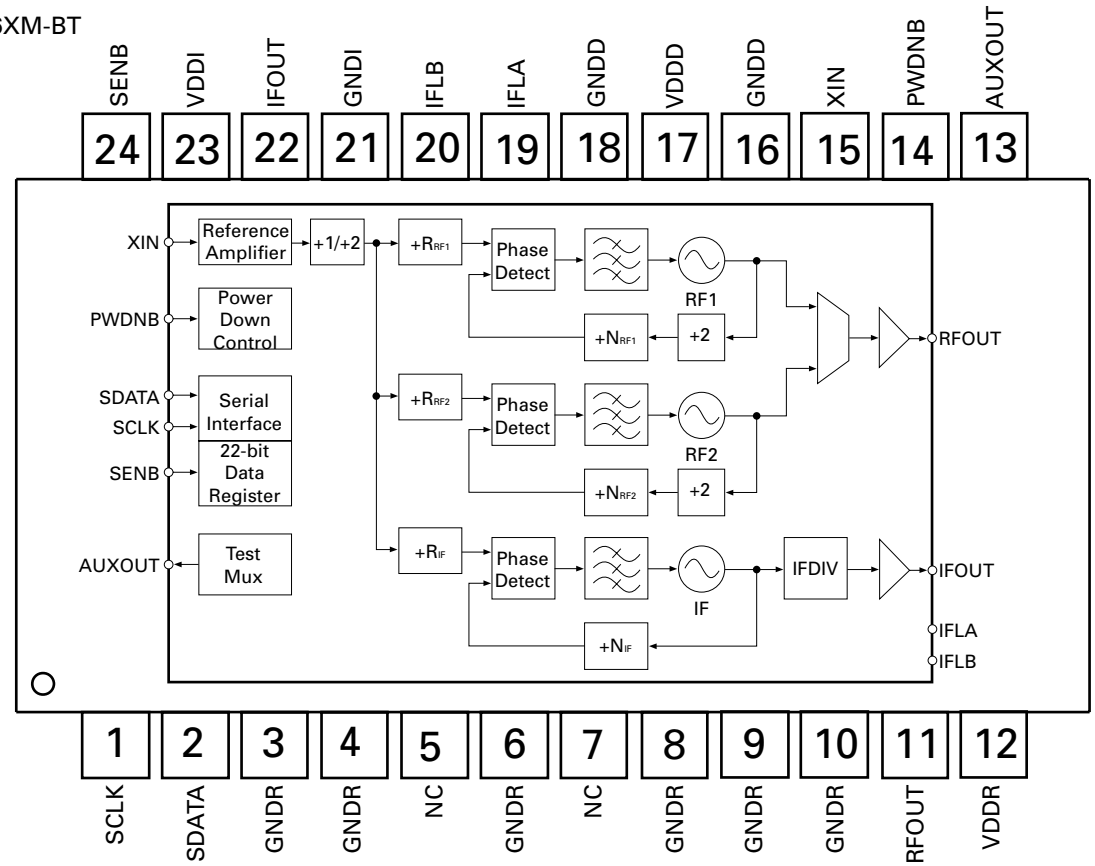
NJM2870F05



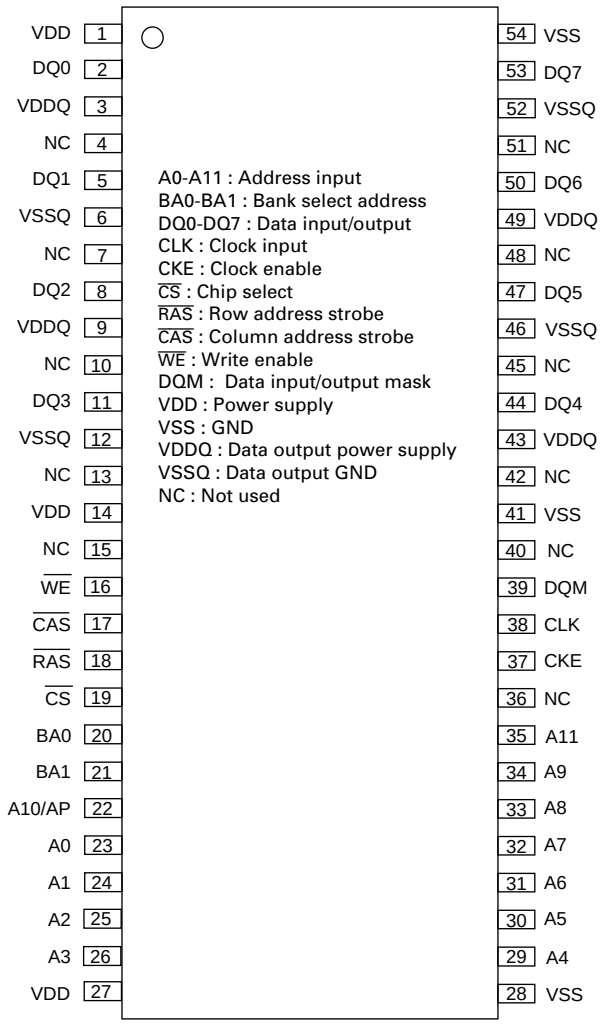

*TC74HC4066AFT




*SI4136XM-BT

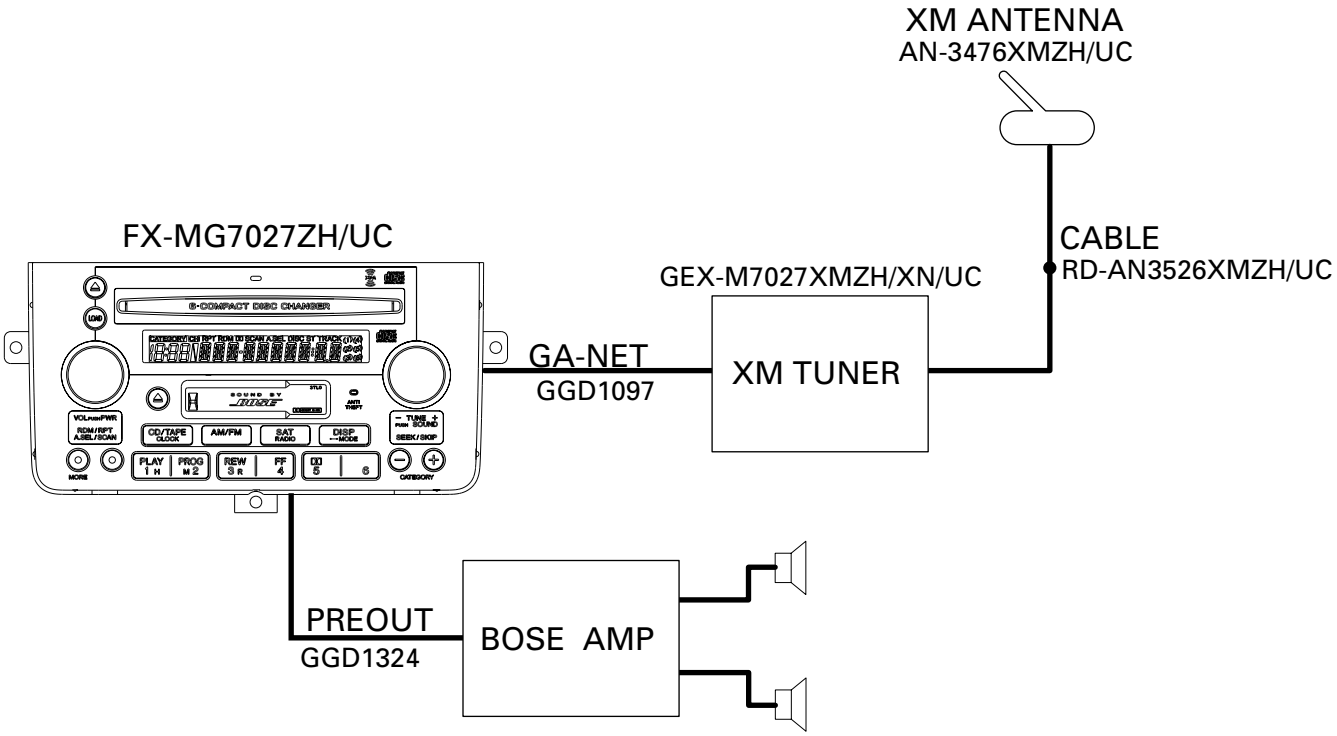


*K4S280832D-TL1H

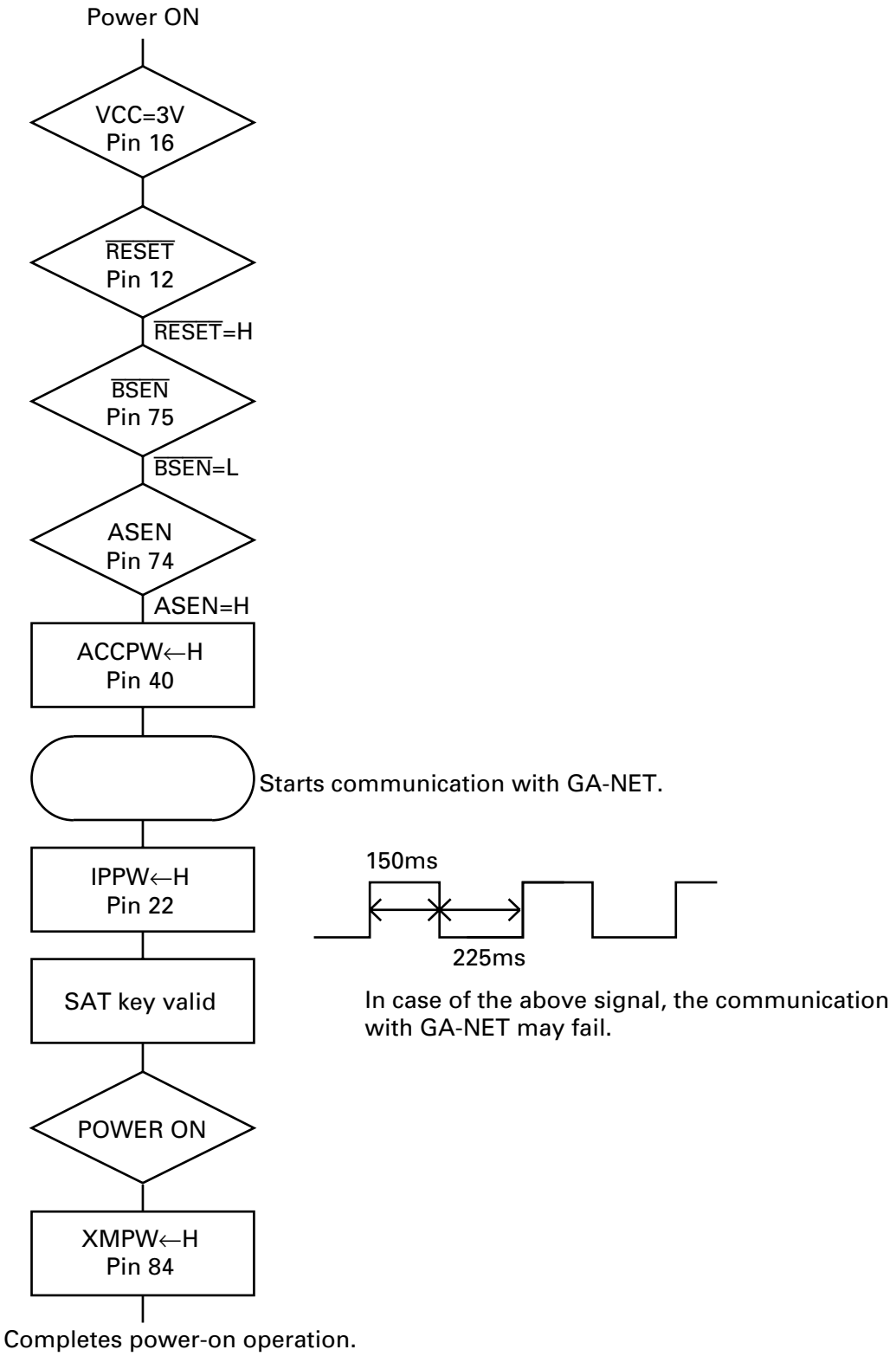


## 7.3 EXPLANATION

### 7.3.1 SYSTEM BLOCK DIAGRAM



## 7.3.2 OPERATIONAL FLOW CHART



# 8. OPERATIONS

● **FX-MG7027ZH/UC**